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ABSTRACT

Reviews of literature and administration of different types of measurement tools among various student groups in Wisconsin were conducted to explore black cognitive styles on five dimensions and to investigate whether social and cultural factors affect the knowledge acquisition process. Results revealed that: (1) blacks tend to be more field dependent than whites, a difference that seems to be associated with blacks' lower performance levels on school tasks; (2) blacks tend to categorize their world using more finely discriminated classes than whites; (3) differences in stylistic preferences and performance on cognitive tasks seem to diminish if students were matched for life style, social situation, age, and grade; and (4) variations in cognitive patterns seem to be associated with school performance and with students' social status. Overall, the data indicated rather complex relationships among preferred ways of knowledge acquisition, social and economic roles, and school performance. Many of the findings are inconclusive, however, because of varying results generated by the use of different instruments. (Author/MJL)

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Afro-American Patterns of Cognition

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1982

UD 022 553

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Abstract

Knowledge of the world is gained in many different ways. One mode is through the use of perception, a rather broadly based process which includes not only sensorimotor reception, but also the conceptualization and appraisal of information. It is the contention of many theorists who study this method of cognition that individual differences in information processing develop as the result of social and cultural experiences. This relationship is usually studied through the identification of cognitive style. Using carefully validated instruments which represent five different stylistic dimensions, a series of studies was conducted to: (1) determine if there is a unique Afro-American pattern of cognition; and (2) determine if there is a particular pattern of cognition which is promoted in the school setting. The results seem to indicate a rather complex relationship between preferred ways of acquiring knowledge, social and economic roles, and school performance.

Chapter I

Cognitive Style as Patterns of Cognition

How individuals gain and use knowledge of the world is a question which must be answered if psychologists and educators are ever to understand the learning process. The question of "how one knows" has, of course, been the subject of many philosophical treatises, and of various theories and models on thought and learning. Regardless of the discipline, the major focus has been an effort to uncover the process by which individuals select, collect, store, modify, interpret, understand, and use environmental or internal information (Merluzzi, Glass, & Genest, 1981). This, succinctly, is the process of cognition.

Royce (1974) suggests that there are three basic ways of knowing. One process is through rational/logical thought which focuses on the formation, elaboration, and functional significance of various concepts or ideas. The second way an individual might gain knowledge is through perception. Using this method involves the use of the various sensory inputs to which the person is exposed. The third method through which knowledge is acquired is with the use of and formation of symbols to represent reality to the individual. According to Royce's point of view, these processes converge to form a cognitive structure which is decoded in accordance with the person's experiences and world view. An important assumption of this theory is that individuals seem to develop a preference for a particular epistemic style which, when combined with certain abilities and affective characteristics, represents their distinct method of processing information. Individual variations in information processing are sometimes studied under the concept of cognitive style.

There are many definitions of cognitive style. Gardner, Holzman, Klein, Linton & Spence (1959) define cognitive style as a pattern which represents a superordinate level of control within the personality system. Harvey (1963) suggests that the concept represents the way in which individuals file and process stimuli so that the environment takes on a psychological meaning. Bieri (1971) indicates that it is a strategy of information transformation, while Coop and Sigel (1971) perceive it as individual modes of functioning in a variety of behavioral situations. Guilford (1980) on the other hand, suggests that cognitive style should be viewed as an executive function which serves as the initiator and controller of intellectual functioning. The most generally agreed upon definition of the concept is one which defines cognitive style as "a superordinate construct which accounts for individual differences in a variety of cognitive, perceptual, and personality variables."(Vernon, 1973). For the purposes of this paper, however, cognitive style is viewed as a individual preference for gaining, storing, processing and using information (Ausburn & Ausburn, 1978).

An information-processing approach to cognitive style

When the concept of cognitive style is considered from an information processing perspective, it takes on a very different orientation than the unidimensional bipolar personality types usually described. Instead, cognitive style becomes a multidimensional concept with a set of interrelated dimensions. To demonstrate this approach, Wardell and Royce (1978) examined numerous stylistic dimensions for similarities and differences and divided them into cognitive and affective subsystems which seem to accompany the three methods of cognition. The cognitive system includes: the cognitive simplicity/complexity dimension, as identified by Kelly (1955) and Schroder, Driver and Steufert (1967); conceptual (or cognitive) differentiation (Gardner & Schoen, 1962); category width (Pettigrew, 1958) and equivalence range (Sloan, Gorlow & Jackson, 1963); conceptual integration (Harvey, Hunt, & Schroder, 1961); analytical and relational categorizing style (Kagan, Moss & Sigel, 1963); compartmentalization (Messick & Kogan, 1963); abstract vs. concrete thinking (Harvey, Hunt & Schroder, 1961); and the leveling vs. sharpening dimension (Klein, 1951).

The styles which the authors assigned to the affective or motivational system were: reflection vs. impulsivity (Kagan, 1965); physiognomic vs. literal ego control (Klein, 1970); tolerance for ambiguity (Frenkel-Brunswick, 1949); and constricted vs. flexible control (Gardner, et al., 1959).

The cognitive-affective system which represents an integration of both cognitive and affective dimensions includes: field articulation or analytic vs. global style (Witkin et al., 1954); and scanning (Holzman, 1966). These last styles are suggested as perceptual attention preferences and later subsumed under the cognitive subsystem as perceptual ability.

The hypothesized relationship between these styles and the three identified methods of cognition is indicated in Figure 1. In general, this view by cognitive style seems to treat cognitive styles as "ego control" mechanisms which affect the ways in which individuals acquire, integrate and use information. Based upon their individual preferences in each area, individuals might become rational, empirical or metaphoric processors.

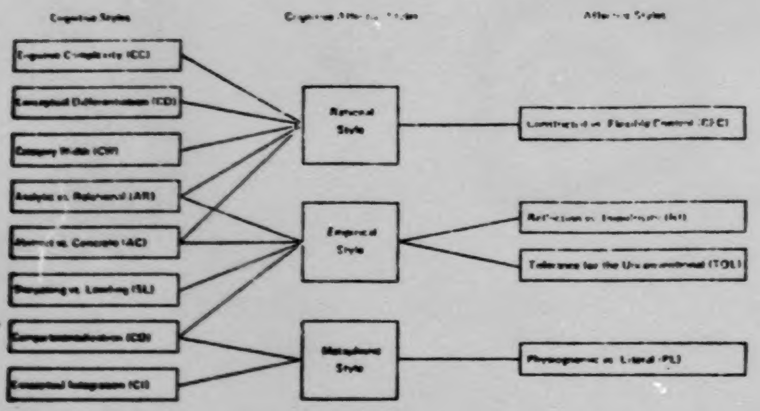

Cognitive Styles
Affective Styles
Category Width (CW)
Analytic vs. Relational (AR)
Abstract vs. Concrete (AC)
Sharpening vs. Leveling (SL)
Rational Style
Empirical Style
Metaphoric Style
Tolerance for the Unconventional (TOL)
Physiognomic vs. Literal (PL)

Figure 1. Wardell and Royce Conceptualization of Cognitive Style and Cognition.

Another model which emphasizes the information processing approach was developed by McKenney and Keen (1974). This model represents ways of processing information based upon decision-making performance. (See Figure 2.)

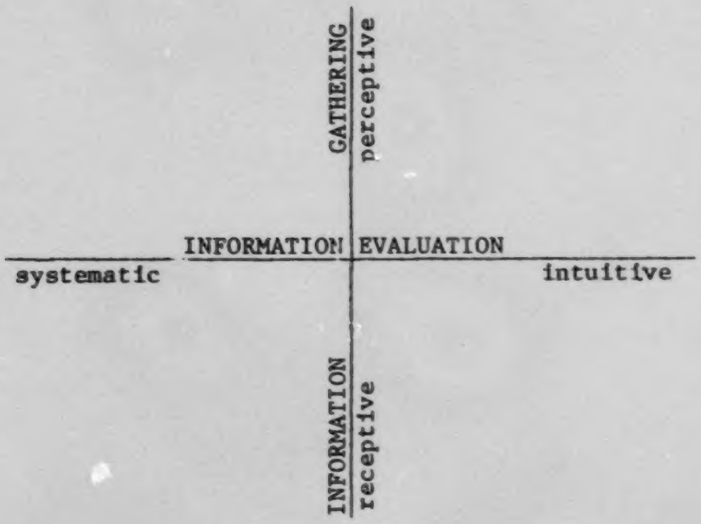


Figure 2. McKinney and Keen information processing model of Cognitive Style

Within the information gathering process receptive thinkers are attentive to details and exact attributes of problems whereas perceptive thinkers focus on relationships. This conceptualization is similar to the analytical vs. relational style as conceived by Kagan, Moss, and Sigel (1963). Individual variations in decision making occur due to the preferred combination of the two processing approaches. In their assessment of differences in decision making of people in various professions, the authors found that systematic thinkers tend to look for a method and plan for solving problems by conducting an ordered search for additional information and moving through a process of increasing refinement by analysis of a problem. On the other hand, intuitive thinkers keep the overall problem in mind and tend to rely on unverbalized cues or hunches, while jumping back and forth in their search for alternative solutions.

To test the idea that cognitive styles are really only information processing preferences, commonly identified dimensions were categorized according to their processing orientation. When this is done, the "styles" seem to fall into three groups. One group of styles seems oriented toward perceptual processing or information gathering styles; a second group toward conceptual formation (information differentiation); while the third group seems more oriented toward defining the individual's response to the environmental information (information evaluation). The stylistic dimensions were thus grouped as follows:

Information gathering styles

The cognitive styles associated with sensory orientation toward the environment have, perhaps, the best empirically based theory. This is probably due in part to Witkin's research on field independence as well as the work by Gardner, Holzman, Klein et al. (1959) on cognitive controls. Both approaches use visual perceptual measures to examine an individual's assessment of spatial relationships. From this, assumptions are made about the type of cues to which individuals will attend and how they prefer to integrate them with their understanding of reality.

Vernon (1973) suggests that the Rorschach theory of classification based on the visual stimuli were the forerunners to the Klein, Gardner, and Witkin work. Similar work is supposedly found in the Jaenichian (Vernon, 1973) cognitive style of integrated-disintegrated styles in which differences in perceptions of images are considered to be dissociated and inflexible or integrated and flexible. Other similar styles identified in this area are Messmer's (Vernon, 1973) synthetic and analytic types representing identified preference for whole or detailed discrimination and Neumann's (Vernon, 1973) diffusive versus fixative attention styles. The latter seemingly resembles the scanning concept identified by Holzman (1966) and the concept of levelling-sharpening (Gardner, Holzman, Klein, et al., 1959) which concentrates on style of attention deployment and perceptual awareness.

Information differentiation styles

The cognitive style dimensions which seem to fall in this category are those which examine how people abstract, differentiate and/or classify information.

An early attempt at delineating styles in this area was done by Gross (1932 in Vernon, 1973) who identified individuals who were broad-shallow type thinkers as opposed to those who were deep-narrow types. This approach was very similar to breadth of categorization, Pettigrew's (1958) "band width" and Gardner's (1953) "equivalence range" studies. Using a variety of tasks, investigators attempt to determine whether individuals use a highly differentiated mode to categorize information or a more generalized approach. At one end of the pole are those who put things into many categories (narrow widths) regardless of the measuring dimension, while at the other end are those who put items in very few categories (broad widths).

Other theorists extended the concept of equivalence ranges to the examination of the type of categories used. These theorists are generally lumped under conceptualizing styles or conceptual differentiation. Kagan, Moss, and Sigel (1963) classified individuals into three categories based on their preference for thematic categorization or a functional relationship approach, i. e., descriptive-analytical, relational-contextual, and categorical-inferential. In much the same vein, cognitive styles based upon the abstractness as opposed to the concreteness of the categorization efforts of individuals were proposed by Goldstein and Scherer (1941).

The reflectivity-impulsivity style of Kagan (1965, 1966) and the conceptual-perceptual motor-dominance styles of Boverman (1960) appear to focus not only on categorization but also on speed and consistency of performance. Both tend to use a visual perceptual test to determine the style designation.

Cognitive styles which seem to focus more of the ways in which individuals arrive at their conceptualizations have also been identified. Using Guilford's identification of convergent as opposed to divergent thinkers, Hudson (1966) identified a bipolar approach to information processing. The convergent thinker processes information by eliminating all but the best or most conventional while the divergent thinker tends to find reasons why all could be equally acceptable. Pask's (1969) cognitive style continuum classified individuals as having holistic vs. a serialistic style. The holistic person needs to have a global overview of the relationship between details while the serialistic individual builds the overview by stringing details all together. Another style was identified by Paivio (1971) in which individual preferences for handling ideas was by using visual strategies as opposed to verbal strategies. The visualizer-verbalizer stylistic approach has also been correlated with brain laterization measures.

Information evaluation styles

The study and definition of personality as a construct, has always been difficult; however, if it is viewed as a process through which individuals define their needs in relation to the demands of environment, it can be examined using the concept of cognitive style (Stagner, 1974; Fiske, 1973). Theorists who advocate this approach try to understand individual behavior based upon the attention given to certain aspects of the environment and the information used to make decisions. Cognitive style dimensions which fall in this category include: Jung's (1923, 1949) concept of extraversion-intraversion ; Kretschmer's (1925) dissociate vs. integrative attention; and Harvey, Hunt, and Schroder's (1961) conceptual systems theory which delineates an individual's ability to differentiate and integrate information in a complex or simple manner. These styles seem to concentrate largely on the characteristic attention an individual pays to the environment from which the information is extracted. Other cognitive styles which seem to fit this orientation include Rokeach's (1960) open-mindedness as opposed to intolerance of ambiguity or closed mindedness; Klein's (1970) constricted vs. flexible control; and Kelly and Bieri's concept of cognitive complexity or simplicity (Goldstein & Blackman, 1978). Like the syllabus-bound vs. syllabus-free style identified by Parlett(1970), these styles seem to emphasize the degree to which individuals are bound to their own ideas, values, or beliefs about ideas, concepts, experiences and people.

When cognitive styles dimensions are viewed as processing preferences, the assumption is made that the concept usually refers to the preferred approach of an individual when confronted with novel or ambiguous information. In other words, when meeting information or a situation which is new, unstructured, or demands responses which the individual has not previously confronted, it is likely that the person resorts to a preferred way of perceiving, organizing, and interpreting the information. In all likelihood, a successive action also occurs in that the individual uses the information to make a behavioral action decision. Thus, it appears that cognitive style or styles represent not only preferred information processing strategies but also are mechanisms for coping with the environment. (Santostefano, 1964; Witkin, 1978).

An adaptational approach to cognitive style:

Adaptation, according to some theorists, is viewed as the behavior which results from an individual's ability to selectively meet the demands of a perceived environment with which continuity is desired (Allerhand, Weber, & Haug, 1970). Those scholars who suggest that this process is not only a response to stimuli, but also a two-way interaction between the person and the environment view successful adaptation as one which occurs without a significant amount of stress - stress being any situation or consideration which taxes the limits or exceeds the resources of the individual (Coyne & Lazarus, 1980).

The adaptational process supposedly involves three steps: Step one is the appraisal or interpretation of the information gathered (cognitive processing); step 2, the reappraisal of the situation based upon the individuals needs, values, and emotions (affective processing); and three, the making of the final decision on the strategy or action to be taken (adaptation) (Chein, 1954; Combs & Snygg, 1959; Bennett, 1980). The behavior selected seems to depend upon the perceptual field of the individual or, as Gestalt psychologists indicate, the world or life space as viewed by the individual.

Coyne and Lazarus (1980) call this perception and interpretation of the environment - cognitive appraisal. According to their work in the area, cognitive appraisal occurs in two steps. The first step is the primary appraisal process which involves evaluating the significance of the encounter in terms of self. Individuals thus ask such questions as: Is the situation or condition relevant to me? Is it benign or positive? Is it harmful, threatening or challenging? After processing the information in this manner, the individual then moves to the second step in which the question is asked: What can be done? This secondary appraisal is called "making a judgment" and the options or strategies chosen depend upon the individual's needs and interests, the individual's affective state and personal agenda, and the resources, options, and constraints open. This cognitive appraisal process is often equated with cognitive style (Wachtel, 1972; Gardner, Jackson, & Messick, 1960; Klein, 1970).

Witkin and associates (1962) recognized the adaptive function of cognitive style in the development of his field-independence and field-dependence dimension and consequently identified the characteristic ways of responding to the environment by each end of the perceptual poles. This adaptation idea was carried further with the review done by Witkin and Berry (1975) in which the processing preferences of various cultural groups were examined in relation to their specific eco-cultural environment. Berry subsequently designed a model for viewing this phenomena and proceeded to test the assumption that stress or psychological discomfort might result from social, economic, and cultural change. According to the assumption, the more perceptually or cognitively differentiated a group, the better the group would be at adaptation (Berry, 1974, 1976, 1980). The studies done of the various groups outside of the Western, high technology world, seemed to support these assumptions using the field-dependence/field-independence dimension as the measure of cognitive style.

Berry (1976) found that groups who must rely on their entrepreneural ability to secure food through hunting and migratory movement develop social structures and child-rearing techniques which seem to foster a field-independent cognitive style with all of its adaptative propensities. On the other hand, groups whose economy is more sedentary, agricultural, and cooperative develop behavioral, social, and socialization techniques which foster a field-dependent cognitive style. Witkin (1978) thus concluded that cognitive styles develop to fit the life situations with which the individual or group must cope. He calls this cognitive style attunement.

Cognitive style attunement occurs in many ways. In addition to responding to ecological forces, it appears that the individual chooses life situations which best suit their particular cognitive style. This interaction is most evident in the research in cognitive style and career differentiation literature (Witkin, Moore, Goodenough, & Cox, 1977). In their study of the field-dependent/field-independent dimension, individuals who preferred the field-dependent style seemed to be more likely to favor occupations with a "people" emphasis or with a high social content and interpersonal relationship which do not emphasize cognitive restructuring skills. Examinations of occupational preferences of this group seemed to indicate the desire to enter such fields as elementary school and social science teaching, business administration, helping professions, such as social work and the ministry, or administrative activities which work with people such as personnel counselling and marketing. Studies of the field-independent style individuals suggested that their career choices or college work was aimed at teaching or working in fields such as natural science, mathematics, art, engineering, or experimental psychology; teaching agricultural or industrial subjects; or working as physicians, dentists, foresters, and farmers. The evidence suggested that this group was more interested in theoretical, abstract, and artistic fields of study. Of particular importance is the finding that if the cognitive style of an individual and the initial career choice are incongruent, shifts in interest and positions occurred over time to more compatible domains.

McKinney and Keen (1974) found that if cognitive styles and career choices were not attuned, conflict resulted which caused a great deal of difficulty for business. For example, in examining the working relationship between managers and engineers in a business, differences in styles were found. The managers were found to be more intuitive, global, and somewhat like field-dependent in their approach to making decisions and handling the work, while the engineers were more analytical, sequential and field-independent. Differences in decision making and work related efforts were noted.

In another study Smith (1979) examined the information processing and adapting techniques used for law students in different types of law schools and concluded that different cognitive styles are used in different types of law schools. One type of school is the pure professional law school which seems to be more oriented to the strict interpretation of the law. The style most compatible with this situation is a more cognitively rigid, less tolerant of ambiguity, authoritarian approach. Smith calls this style a monopathic style. The more academic law schools which tend toward less strict interpretation of the law are more compatible with Smith's polypathic style. The students with this style were more cognitively flexible, more tolerant, and less authoritarian.

In both the Smith and McKinley Keen situation, success for the individual in meeting organizational goals depended upon cognitive style attunement.

Another arena in which cognitive style functions in an adaptive capacity is in the area of interpersonal relationships. Witkin (1978) found that individuals apparently select others to share important situations in their life who have similar cognitive styles. This idea was examined using cognitive style compatibility comparisons between college roommates and marriage and dating partners. Although the trend of the evidence seemed to suggest cognitive style attunement was necessary for compatibility, a definitive relationship was not discerned (Witkin, 1978). In a further examination of the idea, however, Witkin and Goodenough (1977) reviewed the literature in interpersonal relationships and found three primary conditions which appear to be influenced by cognitive style attunement. The first was in the area of selective attention to cues in social situations; the second, in the seeking of interpersonal relationships and the amount of emotional distancing necessary; and the third, in the handling of hostility.

According to the reported research, field-dependent individuals are more interested in people, prefer to be physically close to people and are emotionally open and gravitate toward social situations. In addition, when field-dependent individuals feel people have the type of information needed to assist them in their decisions, they are more likely to use them as referents. Field-dependent individuals also tend to develop the type of personal characteristics which permit them to get along well with people. Field-independent individuals, on the other hand, have less ability to get along with others primarily because they seem to be less interested, show and demonstrate more physical and psychological distancing from people and prefer nonsocial situations. Because they are good at cognitive analysis and restructuring, they tend to rely on their perceptions of the situation to make decisions rather than on external referents.

This "people-versus-thing" orientation also shows up in the personality or cognitive control dimensions in the handling of hostility. Individuals who are field-dependent and people/social oriented are more likely to suppress their feelings and avoid direct or overt expressions of disapproval or aggression, while the field-independent demonstrate less control and are more likely to express their feelings and disapproval. Again, the social situation is often made more difficult for them by this.

As one examines the concept of cognitive style, then, it becomes apparent that this is a construct which represents, not only methods of processing information, but also individually preferred ways of acting. Together these preferences represent individual patterns of cognition. Variations in these patterns will undoubtedly be as numerous as the individuals who use them. However, the possibility of finding groups of individuals who seem to use the same pattern of thinking and acting is also possible inasmuch as many people are likely to be subjected to the same type of environment. As Chein (1954) and Barker (1968) point out, environments tend to solicit the behavioral patterns necessary for survival within the confines of that situation.

A factor which seems to create a particularly dynamic environment to which individuals must respond is that of ethnic status or skin color. Whether or not the environment which results from the addition of this political and social dimension creates different patterns of information processing and adaptation is the next issue to be considered.

Chapter II

Cultural Foundations of Afro-American Cognitive Style

Afro-American Information Processing Style

Do Afro-Americans process information for the environment differently than other groups? Based upon his observations of Afro-Americans, Hilliard (1976) would answer affirmatively. He suggests that Afro-American people a) tend to view things in their environment in entirety rather than in isolated parts, b) seem to prefer inferential reasoning rather than deductive or inductive reasoning, c) tend to approximate concepts of space, number, time, rather than aiming at exactness or complete accuracy, d) prefer to attend to people stimuli rather than non-social or object stimuli, and e) tend to rely on nonverbal communication patterns as well as verbal communication. This difference is said to emanate from the existence of a distinct Afro-American culture (Hale, 1982).

Culture is a rather abstract term but is generally defined as the rules used by members of a particular group to govern the interaction with each other and the environment. Berry (1976) considers culture to be a way of life or a learned pattern of behavior which is unique to a group of people. Cohen (1974) defines it as a process of adaptation. The general view held of Afro-American culture is that it is a distinct pattern of thinking, feeling, and acting which has developed as a way of adapting to color discrimination. Charles Keil (1966) suggests that this pattern is an "experiential wisdom" which provides Afro-Americans a unique outlook of life or world view.

Every group of people seems to have a Weltanschanung or world view which serves as the philosophical underpinnings of their behavior. Royce (1974) defines this world view as an organism's organized set of personal cognitions which constitutes a model or image of reality (i.e., "the way things are"). Personal cognitions are concepts, constructs, or categories which organize and unify the world. For Afro-Americans this world view seems to focus on adapting to the demands and challenges presented by people and social situations arising due to the role color plays in this society. In other words, the concept which seems to organize and unify the world for Afro-Americans is "survival" in a color-coded world. The results of this cognitive set seem to be manifested particularly in their information processing strategies.

Information from the environment can be perceived in many forms. Some information comes in forms or figures, other in symbols, some in verbal dimensions, while other concepts can be gathered through attention to behavior. In this society, a great premium seems to be placed on developing the ability to acquire information in verbal and to a lesser extent through figures and symbols (Guilford 1965). In the examination of Afro-American culture, it appears that emphasis is placed upon the acquisition of information from behavioral or nonverbal cues.

In studies in which groups were compared on their attentiveness to cues in the faces of other people, Afro-Americans were found to focus on very different cues than Euro-Americans and subsequently developed different recognition patterns. In a study using black and white females, Hirschberg, Jones, and Haggerty (1978) found that the Afro-American subjects paid much more attention to the affective characteristics of the pictures of male faces than to the physical characteristics. In other studies of this phenomena, it was found that although both groups seem to pay closer attention to the faces of people of their own racial group (Galper, 1973; Chance, Goldstein, McBride, 1975; Luce,(1974) Afro-Americans seemed better at discerning facial emotions displayed by individuals regardless of their race (Gitter, Black, Mostofsy, 1972)

Not only are Afro-Americans better at attending to facial cues, they also appear to detect different social reactions and nuances. A study done by Hill and Fox (1973) of a military situation found that Afro-American and Euro-American squad leaders had entirely different perceptions about the climate and interrelationships of the people in their squads. Euro-American squad leaders reported more of a perceived need to give reprimands to subordinates of their own race and better performance ratings to subordinates of other racial groups. Afro-American squad leaders did not make these types of distinctions and also reported perceptions of better relationships between themselves and their subordinates.

A similar study conducted in a school environment reported similar differences in interpersonal perceptions. When teachers were questioned about staff relationships in a recently desegregated school, Afro-American teachers indicated a perception of more teacher-to-teacher conflict than Euro-American teachers. At the same time, they also reported having a better rapport with the non-academic staff as well as the students (Witmer & Ferinden, 1970). As in the previous situation, racial differences in perceptions of social interactions seemed to polarize along a continuum with Afro-Americans responding more to the people in the situation and the Euro-Americans responding more to the task requirements.

This difference is also found in studies of the social meanings assigned to words. Landis, McGrew, Day, Savage, & Saral, (1976) studied a group of Afro- and Euro-Americans middle-class males and hard-core unemployed males by asking them to respond to a word list on a semantic differential scale. Regardless of class, racial differences emerged in the values attached, emotional reactions generated, and the potency assigned to the words. For example, the most highly valued words for Afro-Americans and not for Euro-Americans are quality-of-life words such as progress, success, future, and money. Words having the most positive response and value for Euro-Americans and not for Afro-Americans were words such as marriage, work, and hope. In the personal realtionship category, words such as truth, respect, and sympathy were valued highly by Afro-Americans while Euro-Americans preferred such words as love. On the other hand, Euro-Americans responded with more emotion and negativism to words such as battle, danger, trouble, crime, and confrontation while Afro-Americans showed not only less emotion, but neutrality.

In another study of differences in social perceptions Szalay and Bryson (1973) found that words representing themes of racial integration, individual needs, and social problems were perceived as having higher value by Afro-Americans while Euro-Americans preferred word domains representing various "isms," national loyalty, and health concerns. The response variation apparently represents differences in attached affective meanings.

Perhaps the area in which differences in interpersonal style is most evident is that of social distance. Social distance involves the expanding and contracting physical space surrounding the individual (Liebman, 1970). The perception of social cues, ideas, and attitudes is affected by the amount of physical separation demanded by the individual for social interaction. Those who permit individuals to come close gather one sort of information while those who demand greater separation receive other types of cues (Hall, 1966). The result is a manifestation of different social cognitive behavior.

Studies using adult samples noted a closer social distance preference among Afro-Americans. Bauer (1973) found this to be true for college students as did Hall (1966), Connally (1974), and Liebman (1970). Willis (1966) reported the opposite finding for older Afro-American adults; however, the significance level chosen for potential error determination was extremely high. This finding, thus, had a high probability of being a chance occurrence based upon the situation and should probably be disregarded.

When compared to other ghettozied, high-involvement groups, Jones (1971) found little difference in Afro-American social distance requirements, at least in a street-meeting situation. However, this is not true in a study done by Baxter (1970) in which Afro-Americans seem to prefer greater social distance than Mexican-Americans. This study would appear to be measuring the axis or degree in which individuals faced each other rather than face-to-face social distance as in other studies as the dyads were observed while watching animals in a zoo. If this is the case, then the Baxter findings are not inconsistent with the trends previously noted.

Although empirical data is limited, it does appear that Afro-Americans tend to prefer "people" oriented information rather than the "thing" or task information generally presented. If this preference manifests itself in many situations, it would appear that the group would develop a unique strategy of perceiving, categorizing, and analyzing information. Thus, it is reasonable to assume that there is a unique Afro-American cognitive style. The limited literature using the various typologies of cognitive style seem to substantiate this assumption.

Field-dependence/Field-independence

The cognitive style dimension most often studied is the concept of field-dependence/field-independence of field articulation. This concept, as developed by Witkin and his associates, denotes the ability of an individual to visually structure or select out and use relevant information embedded in a larger interrelated context (Witkin, Dyk, Paterson, Goodenough, & Karp, 1962). Individuals who are unable to distinguish necessary parts in order to solve the problem are said to be more global and interrelated in their approach to visual information and are classified as field-dependent persons. Individuals who can abstract the necessary parts from the totality of the material regardless of the distracting elements in the visual field are said to be field-independent.

The literature in this area using Afro-American subjects is extremely small and is found largely in unpublished dissertations. In the few studies available, Afro-Americans seem to tend toward the field-dependent end of the continuum.

Perney (1976) tested 40 sixth grade children (age 12) equally divided between race and sex using the Embedded Figure Test. Not only were sex differences present, but racial differences also existed with Afro-Americans exhibiting significantly more field-dependence than Euro-Americans. Although no difference was found on the same test for similar-age boys in the study done by Karp, Silberman and Winters (1969), racial differences were found in the Block Design Subtest of the WISC, a test which correlates highly with the EFT. Again, as in the other study, Afro-Americans were more field-dependent while the Euro-Americans tended toward field-independence. Using the concept of body differentiation as measured by the Rod-and-Frame Test, Rameriz and Price-Williams (1974) found a similar relationship between race and field-dependence. Afro-Americans and Mexican-American children in the fourth grade seemed to prefer the field-dependent approach while Euro-Americans demonstrated a field-independent preference. As in the Perney study, all subjects were of the same age.

In studies in which the age dimension is not addressed, mixed findings are generally reported. Ritzinger (1971) examined a racially mixed group of children aged 6-11 who agreed to participate in a child development research project. Based on the scores obtained on the Embedded Figures Test, Euro-American children appeared to be much more differentiated than the Afro-American children. These racial differences seemed to disappear when socioeconomic class was controlled. In the report of her findings after comparing racial groups from the third, fourth, fifth, and ninth grades, Schratz (1976) indicates no racial differences in the pre-adolescent group but significant differences in the adolescent group. Again, the result indicated less perceptual differentiation among Afro-Americans. Racial group differences on the field-dependent/independent continuum were also found in eighth grade children (Gamble, 1971) and in the high school males examined by Barclay and Cusumano (1967). The mean age of the students in this study was 15.4.

Whether this variation in field orientation continued into adulthood is not known. In one study in which college students between the ages of 16 and 21 were studied using the Embedded Figures Test, no racial differences in field articulation ability were found (Schmults, 1975). However, the comparison group consisted of Italian Americans whose cognitive performance patterns seem similar to Afro-Americans (Leifer, 1972). In studies done by this author, racial differences were found in college students at the beginning of their first year of college, but not when the junior level or third year of college had been reached (Shade, 1981). Where differences existed, Afro-Americans were more field-dependent.

In studies in which Afro-American adult subjects were used and no racial comparisons made, both field-independent and field-dependent individuals were identified. However, the designation of individual styles was based upon the scores of the sample using the median as the dividing point. It is, therefore, difficult to tell whether the subjects designated were really field-independent or merely less field-dependent than others in the sample (Chepp, 1975; Shansky, 1976; Birnback, 1972).

In spite of the observed inconsistencies, a pattern seems to emerge which suggests that Afro-Americans have a field-dependent cognitive or perceptual style.

Although the field-dependence/field-independence construct essentially measures the perceptual style of an individual, Witkin and Goodenough (1977) have been able to demonstrate a relationship between stylistic preference and various adapting styles used by individuals. These response styles are essentially placed on an interpersonal as opposed to an impersonal continuum and are described in terms of the individual's personality.

In studies of the relationship between field articulation and personality style, field-independent individuals have been found to be impersonal in that they were less interested in people and more interested in things. They also demonstrate a preference for nonsocial situations, physical as well as psychological distancing, and the ability to work independently.

As previously indicated field-dependent individuals, however, seem to demonstrate a preference for interpersonal relationships. This is manifested through a strong interest in other people, a need and desire to be physically close to people, a preference for social situations, and attentiveness to social cues. These individuals have been identified as particularly well suited for working in cooperative, humanistic situations. In fact, one might describe them as Reisman's (1950) other-directed personality or Miller and Swanson's (1958) bureaucratic personality type. Perhaps the most prominent trait of each of these types is that individuals with this stylistic preference seems to depend heavily on external referents for guidance and information in novel or ambiguous situations and for help in problem solving.

In spite of the fact that Afro-Americans appear to be more externally oriented, which would be consistent with their apparent preference for field-dependence, studies of the locus of control do not verify this. Among the first studies looking at ethnic differences in this dimension was the one by Battle and Rotter (1963). In this study middle-class blacks and middle-class whites were compared with lower-class blacks and whites. When social class was controlled, no significant differences were found. However, when middle-class Euro-Americans were compared with lower-class Afro-Americans, a significant difference emerged with Euro-Americans being more internally oriented and Afro-Americans more externally-oriented. Unfortunately, this difference is often reported as a racial difference rather than an economic role difference.

Scott and Phelan (1969), studied unemployed adult males between the ages of 20-28, and racial differences did emerge in the same directions as found in the Battle and Rotter (1963) study. Again, however, these differences may still be a function of the economic role of the groups. Gurin, Gurin, Lao, & Beattie (1969) and Gurin and Epps (1975) noted that Afro-Americans seem to have a higher ability than more groups to differentiate between situations in which they have control and those in which other people have the most influence. Studies by Ducette and Wolk (1972) and Kinder and Reeder (1975) seem to support this. Thus, the differences found by Scott and Phelan may merely reflect the greater understanding of Afro-American males who are unemployed about the realistic plight of their situation and epitomizes the Afro-American view of the world.

Jones (1978) examined the relationship between field-dependence and personality traits for Afro-Americans and found that those identified by Witkin and Goodenough (1977) did not correspond to those exhibited by Afro-Americans. Although, as previously indicated, the young adults did tend to be more field-dependent than their Euro-American counterparts in the study, they exhibited a different interpersonal behavior profile. They were more dominant and socially poised, tended to adhere to more fundamental religious beliefs, were concerned about impulse control, were power oriented, skeptical and cynical. They also demonstrated a psychological toughness. On the other hand, they were also less risk oriented, less adventuresome, and more socially conforming than the white students in the sample. Jones suggests that the personality implications for field-dependence may vary for Afro-Americans.

Compartmentalization

In every enviornment, the individual is confronted with more information than the person is capable of handling. As such the individual develops an approach to scanning and focusing on particular elements of the information and for abstracting information which classifies the ideas, objects, or situations. The cognitive style preferences placed in this category examine how people attend to and structure a situation. Also examined are the attributes or relationships most often used in classifying objects or concepts.

Ascertaining the pattern dominating Afro-Americans on this dimension is difficult due to very limited evidence. Carlson (1971) investigated the perceptual organizing preferences of a group of middle-class racially mixed children ages 5-9. The results indicated that Afro-American children seemed to have difficulty placing visual material into the more discrete groupings. In another study, Afro-American children, aged 5-8, were tested on their ability to visually structure an unstructured field. They were asked to name objects pictured on a card on which a random arrangement of pictures was displayed and again from a card on which the pictures were arranged in a triangle. Based upon the number of omissions and commissions, it was found that the card on which the pictures were placed in a spatial relationship proved easier for the children than the one on which the pictures were randomly arranged (Hansley & Busse, 1969).

Abstraction style denotes the categorizing preference of individuals not their capacity to develop concepts (Wallace, 1965; Gibson, 1969). Those individuals who tend to be analytical are prone to group various stimuli based upon the similarity in specific elements. Relational individuals seem to perceive the information on the basis of various thematic or functional relationships. When Sigel, Anderson, and Shapiro (1966) studied the categorizing behavior of middle and lower socioeconomic class Afro-American children, they found significant class differences. Although relational responses were used by the middle-class child, this group was more likely to use descriptive-analytical responses based on physical attributes of the objects or pictures. Lower-class children on the other hand produced more relational responses based upon the use of the objects or thematic relationships. The authors explained the difference between the two groups as the result of the increasing differentiating ability of the middle class to view the object world in a more objective manner.

In addition to class differences, racial differences have also been noted. Orsanu, Lee, and Scribner (1979) examined Afro-American and Euor-American first and fifth graders and found that while economic status had an effect upon categorizing behavior, ethnicity was also responsible for differences. Afro-American children tended to sort lists on a functional basis while Euro-American children used the more descriptive taxonomic approach. This difference in style, however, did not affect the successful completion of the task.

Gamble (1971) also found racial differences in categorization style. In this study which compared Afro- and Euro-American advantaged and disadvantaged groups from rural, urban, and suburban environments, few differences emerged when class was controlled. However, among the disadvantaged group, the white suburban, and white rural groups exhibited, not only greater field independence, but also a more analytical categorizing style than the black urban children. In this study, as in the one conducted by Wilde (1973), regardless of race, the more advantaged children appeared to have a different differentiating system than those from the lower classes.

Simmons (1979) suggests that any comment about racial difference in categorizing responses must include a consideration of the cultural salience of the stimuli presented. Kogan (1971) agrees. His review and analysis suggests that the strategy selected seems to be a function of the interaction between age and the nature of the stimulus. In addition, methodologies used make it difficult to distinguish whether or not individuals are using the relational style because it is their judgment or because it seems to fit the task.

An accompanying concept and perhaps the most investigated using Afro-American subjects, is the dimension of conceptual tempo. Again, individually preferred modes are evident. In processing the information, many individuals are slow to respond before they gather all the information possible and consider the validity of the solution. These individuals are considered to be reflective responders. On the other hand, many persons respond immediately to what is presented without regard to potential errors. These individuals are labeled impulsive. Although it is generally assumed that Afro-Americans are more impulsively oriented than other groups (Kagan, 1966), there is a lack of evidence to support this view.

In a study of this dimension by Zucker and Stricker (1968) Afro-Americans and Euro-Americans were compared and Afro-Americans were reported as being more impulsive in their approach. In this study racial differences were confounded by class differences in that only middle-class subjects were Euro-Americans and only lower-class subjects were Afro-Americans. Even though this was the case in the Fisher (1968) study as well, no differences were found in conceptual tempo.

When race was controlled in the study of this dimension, Mumbauer and Miller (1970) found only class differences were evident. In the study in which class as controlled, Reiss (1972) found no differences between races. While most findings do suggest the lower class tends to have a higher percentage of impulsive responders, the distribution of reflective-impulsive style individuals seems to more carefully delineate the successful vs. the nonsuccessful student (Messer, 1976; Mumbauer & Miller, 1970; Reiss, 1972) The lack of consistent patterns in this area suggests that perhaps this dimension is not associated with ract or with a culturally specific approach but is defined only by the rate of individual development.

The question posed at the beginning of this chapter was: "Is there an Afro-American cognitive style?" i. e., a different information processing strategy adopted by Afro-Americans which assists in their adaptation to a color-conscious society. Although the answer is tentative, it would appear that the possibility does exist, however before a more definitive answer is possible one must examine Afro-American adapting styles.

Afro-American Adaptational Style

In the issue of Daedulus which focused on color and race, Edward Shils wrote:

> In itself, color is meaningless. It is not like religion which is belief and entails either voluntary or hereditary membership...It is not like kinship, which is a tangible structure in which the individual has lived, which has formed him, and to which he is attached... It is not like intellectual culture which is belief and an attitude toward the world. It is not even like nationality which is a superimposition of beliefs about a community of culture...
>
> Color is just color. It is a physical, a spectroscopic fact...It is like height or weight - the mind is not involved. Yet it attracts the mind. (Shils, 1967, p. 270).

Another author notes that skin color, in and of itself has no real meaning. Yet somehow our society has given it meaning and attached to it the symbolic representation of exploitation, inferiority, injury, insult. (Brown, 1969) For Afro-Americans, color, when ascribed to skin description, is a mark of oppression, a pathological obsession which invades every aspect of an individual's life and an index of evaluation. Because it has taken on such an orientation, it also has become a major psychological influence on an individual's development, and an important dimension to which an individual must adapt.

To date the general impression is held that the major adaptive techniques used by Afro-Americans are those of subserviance, ingratiating mockery, withdrawal, apathy, hostility, aggression, denial, and suffering. Like other areas in the study of Afro-Americans, the focus on the study of adaptation to difficult existence has concentrated on deficits, maladjustment, and pain and suffering. Witness, for example, the fact that the Kardner and Oversey book (1972) The Mark of Oppression, and the Grier and Cobb book, Black Rage (1968) are still oft quoted references in the description of Afro-American adaptation to this society. In these and other studies, the primary focus seems to indicate that Afro-Americans became mentally ill in some form or they become overtly hostile and aggressive and consume themselves with hate because they are black.

While there is little doubt that this explanation explains the adjustment of some Afro-Americans, certainly it cannot be a major coping technique. Had it been, the history of the group would have been stories of stagnation, failure, and probably extinction. Instead a careful look at Afro-Americans shows a portrait of growth and development. Unlike other threatened groups, Afro-Americans have added to their numbers rather than move toward a decreased population. While not as representative as should be expected, Afro-Americans have secured an increased proportion of economic goods and more Afro-Americans than ever before have entered our colleges and universities. Afro-Americans are also found in various occupational levels throughout the social spectrum. Thus, one might conclude that in spite of color and the inordinate emotional meaning attached to it, Afro-Americans have managed not only to survive, but to progress. This suggests that perhaps it is more appropriate to view Afro-Americans from a positive rather than a negative perspective. In other words, it is more important to assess the coping mechanisms linked with success than to concentrate on those associated with failure.

To understand the concept of Afro-American adaptation it is imperative that it be examined from something other than a psychoanalytical theory. The psychoanalytic perspective only permits the examination of self hatred, psychological complexes, and the mental illness phenomena. In recent years, however, this theoretical perspective has given way to the environmental orientation which suggests that the way of understanding individuals or groups is to view them within the framework of their environmental interaction. The assumptions of this perspective is that the environment, however it is defined, has a direct impact upon individual and group behavior (Barker, 1968). As Barker points out, each setting makes its own demands and thus fosters its own particular behavior or personality. Personality within this framework is like a mask made up of patterns of behavior through which the individual expresses his uniqueness. It represents not only the behaviors individuals display, but also the cognitive strategies employed in arriving at their decisions about how to act.

Over the years Afro-Americans have developed the following strategies to deal with an environment of racism.

1. A strong kinship network: The Afro-American kinship network is a multi-generational social network of relatives, friends, and neighbors (Aschenbrenner, 1973; Martin & Martin, 1978). Although previously viewed as less than desirable

structure, recent research efforts have found this to be particularly beneficial. This particular aspect of Afro-American life serves as a buffer for achievers against negative ecological forces as well as a support mechanism and a facilitator and mediator. Through this network, Afro-American individuals and their nuclear family system are able to give and receive emotional, physical, and psychological support. While there may not be as much of a need for financial support as in the lower class networks described by Stack (1974) those upwardly mobile blacks still need the psychological and social support (MacAdoo, 1977). Since achievement or doing well is not always considered appropriate, these kinship networks reinforce the desire for success and offer encouragement as well as prevent the isolation which sometimes occurs when Afro-Americans rise above the crowd.

2. A second important factor in becoming successful seems to be the presence of a strong maternal figure. Decade after decade, the Afro-American mother has been described in a negative manner as being dominant, assertive, strong and castrating. Yet, a survey of the biographies and autobiographies of successful Afro-Americans reveals a mother who provides aspirations, very often has insights as to avenues which will lead around barriers, or is simply risk-taking and tenacious enough to pursue goals and push children into doing well. The literature on the Afro-American mother and her relationship to achievement supports this perspective. Numerous authoris found in their studies that the high aspirations and desires of Afro-American children and youth could be linked to the mother's role (Shade, 1982). In a study of the factors which aided lower class minority males achieve social mobility and escape the ghetto, Ross and Glaser (1973) found that each person studied had an important significant other who set standards and guided his aspirations. In most instances, this was the mother. Similar findings were reported by Scanzoni (1971).

3. The participation in a church culture also appears important. As previously noted, the Afro-American church was more than a place to practice one's religious beliefs. It became an education institution. When Perkins (1975) examined the survival school for Afro-American children, he noted that, in addition to the family, the church and the "streets" were also agents of instruction. Examination of the life of achievers notes that there appears to be a point in life in which Afro-Americans must make a choice between the street and the church as a major socializing agent. This is difficult in that to some extent, they are similar institutions with their own rituals, music, verbal manipulation techniques, roles, interaction rules, and curriculum. Achievers chose the church probably because it tends to more closely adhere to social norms and tends to reward successes which are socially acceptable. But of most importance are the opportunities the church provides for children to practice and attain social skills such as drama production, speaking, organizational theory, and organizational management and self inflation which may not be available to them in integrated settings such as schools.

4. A fourth and perhaps most important coping skill which seems to be extremely important is that of duality or biculturalism - i. e., the ability to be both an African-American and Euro-American. DuBois suggested that:

> ...The Negro is sort of a seventh son, born with a veil and gifted with second-sight in this American world....It is a peculiar sensation this double-consciousness, this sense of always looking at one's self through the eyes of others...One ever feels his twoness--an American, a Negro; two souls, two thoughts, two unreconciled strings; two warring ideals in one dark body, whose dogged strength alone keeps it from being torn asunder. (DuBois, 1970)

Those Afro-Americans who can function in such an incredibly difficult situation develop some important personal traits. First, they are able to dream and have high aspirations while recognizing that there are incredible difficulties to be overcome. Second, they are able to create and invent something from nothing. Harrell (1979) sees this as a cognitive style which he labels as cognitive flexibility. This style of viewing the world permits the individual to accurately assess a situation, determine the need for change, and to be open to new, different, and creative strategies. It is this last coping technique which is of particular importance to this discussion.

According to Harrell (1979), the Afro-American best able to live in a color-coded society is one whose cognitive style is more flexible than rigid, who is creative in problem solving, and more open to new information. From an information processing perspective, this suggests that the individual who can best adapt and live in a ethnocentric world must be a perceptually sharp attender, able to extract important information from rather distracting influences, analyze it effectively, and reweave it into a consistent whole using both an Afro-American as well as a Euro-American perspective.

What we have not been able to discern is whether or not a substantial number of these individuals exist. Neither can we determine how these individuals select, perceive, and evaluate the information on which they act. In other words, in spite of the evidence we have examined, the patterns of cognition used by Afro-Americans to facilitate their functioning in this society remains only a series of speculation. To make a more definitive statement requires some empirical assessment.

Chapter III

The Assessment of Afro-American Patterns of Cognition

The concept of cognitive style generally represents the idea that individuals have found particular ways of perceiving, choosing, remembering, and interpreting information which helps them perform in a majority of the situations they encounter (Underwood, 1978). Thus, the concept seems to be a useful platform on which to build an assessment program to examine the patterns used by Afro-Americans in relating to the environment.

Based upon the previously reviewed studies, it seems important to know:

How do Afro-Americans prefer to attend and extract information from the environment?

How do Afro-Americans prefer to classify and categorize objects and things within their environment?

How do Afro-Americans prefer to make their judgments about the world and is there a particular process of thinking which seems to be evident?

Is the information to which Afro-Americans attend more likely to be cues from social or people stimuli or more likely to be environmental or object stimuli?

Are Afro-American patterns of cognition similar across situations and are they the same or different from Euro-Americans?

To test these ideas, the following cognitive style dimensions were selected for study: field-dependence/field-independence, leveling/sharpening, lumping/splitting, simultaneous/successive processing, and person/thing or extraverted/intraverted orientation.

Field-dependent or field-independent perceivers

This dimension seems to encompass perceptual, cognitive, and personality dimensions of an individual and is often subsumed under the concept of psychological differentiation. The basic premise of the concept as established by Witkin and his associates (1962) is that there are individual differences in the approach to perceptual tasks which seem to indicate individual differences in one's approach to learning and adapting. The more perceptually differentiated an individual is found to be, the more capable the person is of extracting information from the environment regardless of distracting influences and imposing structure on that information. This seems to indicate an efficiency in handling less obvious and less concrete ideas. The less perceptually differentiated a person seems to be indicates the need for a more structured presentation of material as well as a rather well defined, orderly environment if the person is to function efficiently.

Leveling or sharpening scanners

Perception is the process by which an individual gets information from the environment (Jensen, 1966). Although all senses are generally involved, the visual perception process is the one most emphasized, at least in American culture. However, individuals looking at the same object or person may see different things because perception is mediated by their own experiential and inference system (Ittleson, 1974; Segall, Campbell, & Herksovitz, 1966). A cognitive style dimension which identified preferred strategies in perception is that of the leveling-sharpening dimension.

The idea of levelers-sharpeners was first introduced in 1922 by Wulf, but is most often attributed to Gardner and his associates (1953, 1959). The dimension describes individual consistencies in the degree in which new stimuli and relevant memory traces assimilate to each other.

A scanner who "levels" their perceptions are doing little articulation of their stimulus fields. They have difficulty extracting figures embedded in larger contexts, and the presentation of new stimuli becomes easily assimilated into the dominant organizations so that a gradual change in a stimulus field goes unrecognized for a relatively long period of time. Santostefano (1964) describes the leveler as an individual who assimilates or merges new experiences with memories of earlier experiences and therefore constructs relatively undifferentiated and contaminated memories, impressions, and imagery of ongoing experiences.

Sharpening is the opposite pole of leveling and indicates the ability to discern maximal complexity within the perceptual field. Letteri (1981) sees sharpeners as relying on visual memory and using their eyes as the preferred mode of reception of information. Sharpeners maintain discrete impressions and memories of sequentially presented stimuli so that elements do not lose their individuality. Thus, any change which occurs is rapidly detected. This represents the ability to differentiate a stimulus field maximally and make adaptive use of the complexity of ongoing experiences (Gardner & Long, 1960; Santostefano, 1964).

Lumping or splitting categorizers

After attending and selecting the information from the environment it is important for the processor to classify the objects, events, or people into usable groups. This way the information gathered can be used in decision-making or problem-solving. The number of ways in which an array of stimuli can be differentiated into classes will vary based upon the individual's preference for and abstraction of different attributes (Bruner, Goodnow, Austin, 1966). Observers of this phenomena suggest that there is a preferential mode at work which is identified under the cognitive style dimension called equivalence range (Gardner, 1953).

People vary widely in the span of objects, events, or ideas they are willing to subsume under one conceptual rubric. Some persons seem to honeycomb stimuli for every attribute and then classify them into small compartments. These narrow-categorizers or splitters are people who spontaneously sort objects, events, or people into many groups. This is a narrow equivalence range and seems to imply detailed categorization of certain aspects of experience. Narrow-range subjects appear to have relatively exact standards for judging similarity. Other people ignore certain traits and end up with more inclusive categorizations. These are broad-range categorizers or lumpers who appear to be less concerned about fine stimulus differences and thus group stimuli into broader categories. As Letteri (1979) points out, the broad categorizer tends to bring together all items with the slightest degree of similarity. Clayton and Jackson (1961) suggests that this categorizing behavior or differences in equivalence range determines the way in which individuals relate themselves to the world about them in their preferred modes of reality testing, in their ways of knowing the external world.

Successive or simultaneous processors

Successive vs. simultaneous is the label developed by Das, Kirby, and Jarmon (1975) based upon the Luria model of thought. Other authors use analytical vs. holistic (Galin, 1976) or holistic vs. serialistic thinking as labels of this dimension (Pask, 1969). The basic premise is to define various ways of thinking about and using the information which has been gathered and used. As ways of thinking have been examined, it appears as though individuals can develop a rather systematic or successive approach which moves through the information in an orderly, linear, systematic, and differentiating manner. On the other hand, individuals can keep the overall problem in mind, focus on intuition, relationships, attributes, and functions, but might be distracted from the solution by irrelevant aspects of the task. These are global or simultaneous processors.

The successive processor is generally very efficient in dealing with the object world. This individual is logical, interested in organizing data, and prefers to study information in detail. Cohen (1969), Bruner (1960), and Galin (1976) refer to these thinkers as analytical thinkers. For this individual, reality is highly specialized with discrete components. As such, problems are solved by taking a step at a time and with careful deductive reasoning. The simultaneous thinker or processor, however, seems to reflect the pattern Bruner (1960) describes as an intuitive thinker. Strategies used by individuals with this preference involve maneuvers which are chosen based upon problem perception and familiarity with the area on which the person is focusing. Simultaneous or intuitive thinkers generate hypotheses quickly and consider many alternatives and options simultaneously. While such a thinker might obtain the answer to the problem, the individual might not be aware of the process involved in arriving at the solution.

Person or thing specialist

To say that a person is a specialist is to suggest that the individual is positively oriented toward a particular orientation and that the ways of thinking about the orientation are rather advanced (Little, 1972). The person-thing specialist dimension was developed by Brian Little and represents a theory of personality development. The theory seeks to examine the nuances of human responses to the environment by determining the primary objects to which individuals orient themselves. Like the cognitive style concept of personal constructs from which the theory emanated, the dimension is based on cognitive, affective, and behavioral responses to the environment.

Person specialists express interest in a variety of encounters with people and demonstrate little interest in the world of physical objects. They seem to have a highly developed person-construct system, thus tending to construe both persons and things in a personalistic way. A personalistic perspective focuses on the characteristics, dispositions, desires, and relationships of inhabitants of the environment.

In addition to characteristics and traits, person specialists tend to focus upon the emotional aspects of other people and often go far beyond the information given during person perception tasks. In nonverbal communication, these specialists make great use of immediacy cues such as standing closer during social interaction, smiling more, and using first names more frequently. Their academic pursuits are often in literary and social service fields where they place a high value on the relevance of studies to humankind and they tend toward affiliative, empathic, and nurturant responses in social interactions. This represents an extraverted orientation.

Thing specialist

Thing specialists are individuals whose orientation is to express interest in physical objects, machines, artifacts, things, or abstract ideas. They seem to prefer activities involving mechanical, manipulative, and analytic abilities. Inasmuch as these specialists have a highly developed thing-construct system, they tend to construe both persons and things in a physicalistic manner. A physicalistic orientation focuses upon physical traits or qualities. In impression formation tasks, the thing-oriented individual tends to "stick to the data." They have a strong preference for order, clarity, and practicality. The thing-specialists tend to pursue fields such as the physical sciences or practical fields where a stress is placed upon rigor. This is considered to be an intraverted orientation.

Having identified these dimensions, the accompanying measuring tools were selected based upon the following criteria:

1. The task should be as fair as possible to Afro-Americans as to Euro-Americans to permit group comparisons.

2. The test had to be available or adaptable for all age ranges, particularly the 9-, 12-, 16-, and 20-year-olds to permit examination of the developmental aspects of cognitive style.

3. The test should be quick and easy to administer. Inasmuch as the testing will be done within the confines of various social systems or institutions, it is important to have a battery of tests which can be done quickly.

4. To facilitate the analysis, the results of the test should be available in numerical scores. In addition, each test should be easy to score to permit use of untrained assistants.

5. Because of the belief that Afro-Americans and Euro-Americans differ in verbal ability, reading-intense tests should be generally avoided. In addition, because some questions have been raised around the visual perceptual ability of

Afro-Americans in information processing, only visual tasks should be included (Mandler & Stein, 1977). This will permit an examination of diversity in visual information processing.

6. The primary criticisms leveled against tests used with Afro-American youngsters in the educational system is that there are questions relative to the reliability, validity, and standardization of the tests (Miller, 1980; Williams, 1974). The instruments selected therefore should demonstrate a high reliability and validity quotient or some use with culturally diverse populations.

The tasks selected for each dimension based upon these standards were:

1. The Group Embedded Figures Test for field-dependence/field-independence.
2. A Visual Attention Task for leveling/sharpening.
3. An Object Sorting Task for lumping/splitting.
4. A Block Design Task for systematic/successive thinking.
5. The Myers-Briggs Type Indicator for people/thing orientation.

The Initial Battery

Group Embedded Figures Test

There are three different versions of the test to measure field-dependence and independence. One is the Children's Embedded Figures Test, the other the individually administered Embedded Figures Test and the third, a group administered version. All of the forms require the subject to identify a simple form or object embedded in a more complex form. This was made particularly difficult by the use of colors or shading and distracting lines.

The Children's Embedded Figures Test consists of 38 plates in which either a house or a tent form has been embedded. Of these plates, 25 plates are used for testing, 11 of which have the simple TENT figure and 14 contain the simple

HOUSE figure. The test is generally used with children 5 through 12. The Embedded Figures Test consists of two forms of 12 pictures each with 8 simple geometric forms embedded. This test was adapted from the original Gottschaldt figures and made more complex with the use of colors and lines. The Group Embedded Figures Test is an adapation of the individually administered EFT and was modeled from the original test. Of the 18 designs used for scoring, 17 were taken from the EFT. Instead of the colors as in the Embedded Figures Test, shading was done.

The selection of a valid instrument to measure this dimension which seemed fair to Afro- and Euro-American students was difficult due to what appears to be task difficulties. Of those investigations using minority subjects, those using the Rod and Frame Test seemed to be the ones which report racial differences between blacks and whites with Afro-Americans being the more field-dependent (Shansky, 1976; Goldstein & Gerhsansky, 1976; Rameriz & Price-Williams, 1974; Barclay & Cusumano, 1967). In studies in which the individual EFT was reported (Perney, 1976; Karp et al., 1969; Ferrell, 1971; Palmer, 1970; Mohr, 1965), mixed results were obtained. Some studies indicated racial differences with the Afro-American group being perceptually diffuse while others indicated no group differences were present.

Studies using the Hidden Figures Test and Group Embedded Figures Test seemed to indicate more of the individual variation regardless of race. Those individuals who were more articulated appeared to be successful in school performance or adjustment (Schmults, 1975; Levine, 1976; Beischel, 1973) while those who, regardless of race, were more field-dependent were less successful.

In spite of these difficulties it was concluded that the Embedded Figures task was the appropriate measure for this dimension as it seemed to be the best tested tool of the all cognitive style instruments. It is also the task most often used in cross-cultural studies (Witkin & Berry, 1975; Berry, 1976). The group version was selected since it seemed most sensitive to individual variation.

The Visual Attention Task

Acquisition of knowledge is highly dependent upon the perceptual process through which individuals extract information from their environment. Endemic to this process are the strategies used to search for and attend to information. The Visual Attention Task was selected to determine the preferred method of searching with particular emphasis placed upon: (1) whether or not the individual attends to the entire stiumulus or only those dimensions which compose the figure; and (2) whether or not the individual is able to shift figure-ground orientation.

This issue which is constantly argued in the field of perception is whether or not an individual perceives information in a piecemeal fashion or whether or not processing begins with the global features of the stimuli. The basic assumption underlying the task is that if an individual's attention is concentrated on a small part of the visual field, little will be perceived of other parts. If, however, attention is diffused over a large area, specific parts will not be clearly or accurately perceived (Vernon, 1962).

An additional consideration is also presented in the issue of figure-ground reversal or decentering. Centering, as defined by Piaget, implies the perceptual fixation on a dominant figure within the field and an inability to spontaneously shift perspective to perceive the configuration in a new way. The decentering process, when developed, permits the individual to shift focus at will from one perceptual organization to another. In a visual processing task, individuals either perceive only the large figures, or the small figure which makes up the larger stimulus. The ability to see both is an indication of the presence of the ability to decenter or sharply focus perceptual attention. Within the cognitive style framework, attention is defined as the individual selectivity in perception and cognition which results in variation in overall responsiveness to stimulation (Wachtel, 1967). Gardner and associates (1959) referred to this as the scanning dimension of cognitive style.

In their studies of the field-independent and field-dependent individuals Witkin, et al. (1977) and Goodenough (1976) found that perceptual attention made a significant difference in concept attainment. Field-dependent individuals who tend to approach a perceptual field in a global manner tended to ignore some attributes and preferred to employ a partist strategy in their approach to learning. On the other hand, field-independent individuals who were more likely to attend to the majority of the cues in a situation, were able to put all attributes together and develop a wholistic strategy for learning. Attention preferences thus seem to influence the information which is taken from the environment and used.

Perceptual attention strategies are generally determined through the use of ambiguous pictures. The most often used figures are: the reversible goblet and profiles by Rubin (in Attneave, 1965); the young girl-old woman picture often entitled "My mother and my wife" introduced by Boring (1930), and the rabbit-duck figure used in 1900 by psychologist Joseph Jastrow. Elkind (1964) and his associates developed a test for young children using similar types of pictures. Elkind's pictures consisted of two sets of seven cards generally portraying the profile of a face within an object or an animal embedded within the framework of a tree.

In another experiment, Elkind, Koegler, and Go (1964) used pictures which consisted of some common object made up of other familiar objects. For example, a picture of a tricycle was drawn using candy canes and lollipops as its parts. Another consisted of a bird schematized using common fruits and vegetables.

The best known test for measuring perceptual attention is the Rorschach. Individual responses to pictures composed of ink blots are rated on the basis of whether the individual uses the entire stimuli in their description, only part of it, or a combination of the picture and background or space. Responses using the entire picture are supposedly indicative of an abstracting and integrating ability (Wachtel, 1967).

The Visual Attention Task was borrowed from an experiment by David Navon (1977) to determine visual attention preferences for whole vs. part search of a stimulus as well as the tendency to level or sharpen one's perception. The task consists of twelve pictures in which small figures of the H, S, and a rectangle are used to make larger figures of the same letters or form. Subjects are asked to indicate what they observe in each presentation.

Object Sorting Task

Categorization is the primary organizational process in attaining concepts which facilitate the learning process. As individuals develop the ability to group objects, events, and people into equivalent classes, they are better able to handle the complex environment. Grouping may be done by categorizing objects, materials, or people according to immediately perceived properties such as color, texture, pointedness, or number. Functional groups are developed based on the uses or functions of the elements such as things to ride on or things to eat. Nominal groups are those based upon the membership in a common class regardless of elements, such as tools, clothing, or food (Bruner & Olver, 1963).

Various scholars have assigned values to these categorization styles. Bruner (1966), for example, sees the nominal or relational grouping as indicating a higher development than the perceptible grouping approach. Sigel, Anderson, and Shapiro (1966), however, reverse the value orientation with the descriptive-analytical approach as being more preferable than the relational approach. The latter seems more consistent with the developmental literature.

There are many types of object-sorting tests in the psychological research which can be used to study human perceptual development and categorization behaviors. The most common are:

1. Gardner's (1953) Object Sorting Test

Gardner (1953) assumed that persons' response to this sorting task is but one expression of certain centrally determined modes of organization of stimuli around him, and that these modes will be demonstrable also in tasks which involve much less conscious conceptualizing. Therefore, he developed this test and claimed that through studies of individual differences in adaptive modes of organizing and experiencing the stimulus world by using this procedure may be useful in the study of personality. The task consists of 71 objects which the individual is asked to sort. According to Gardner (1953) this procedure measures individual differences in adaptive modes of organizing and experiencing the stimulus world (i.e., individual equivalence range or conceptual differentiation).

2. Object Sorting Tests of Clayton and Jackson (1961)

This task has two forms and is a paper and pencil test based on the procedure developed by Gardner (1953). The task supposedly produces equivalent results and purports to measure the same construct.

3. The Object Sorting Test (Cicirelli, 1967)

This test was adapted from Clayton and Jackson's Object Sorting Test and involved a change from a paper and pencil task to a pictorial manipulative task. There were also substitutions of certain objects to eliminate items which might be unambiguously or unfamiliar to young children. The author was attempting to: (1) measure people's categorization behaviors, and (2) study young children's categorization behaviors and cognitive development. A similar task was used by Wallach and Kogan (1965).

4. The Color Form Sorting Test (Weigl's Test)

Individual ability to sort conceptually or to shift from one sorting principle to another is presumed to indicate good mental functioning. The Object Classification Test developed by Payne and Hewlett (1960) is a modification of the Weigl's Test and was designed to assess this ability by asking subjects to sort objects of different sizes, shapes, colors, and textures into as many categories as possible. A similar task with similar purposes is the Wisconsin Card Sorting Test developed by Berg (1948). Again, an assumption was made that people having difficulty sorting using many different attributes were impaired in their ability to form concepts.

5. The Object Sorting Test (Goldstein & Scherer, 1941)

This test was developed based on the same principles as the Gardner Object Sorting Test except that the materials consist of 30 familiar objects. The reason for using common objects is to eliminate any need to familiarize the patient with the test material or devise names for unfamiliar objects. This test assesses the individual's ability to shift concepts as well as his ability to use them.

Our Object Sorting Measure

Using the list from the Gardner's Object Sorting Task and the lists of the Goldstein and Scherer task, a group of 41 items was assembled for use as a measure of the lumper vs. splitter dimension. The list of items included were:

1. Toy spoon
2. Toy hammer
3. Toy dog
4. Chocolate cigar
5. Ball
6. Candle (small Xmas)
7. Play-chip (small)
8. Play-chip
9. Plate (small)
10. Pipe
11. Match-box (title, partly open)
12. Cigar
13. Matches (2, loose)
14. Table knife
15. Table fork (small)
16. Large table fork
17. Apple
18. Sugar (2 pices)
19. Crackers (2)
20. Screw-driver
21. Pair of pincers
22. Bicycle bell
23. Padlock
24. 2 Nails (loose)
25. Large candle
26. Book (novel)
27. Travel guide
28. Song pamphlet
29. Pencil sharpener
30. Penholder
31. Small pencil-golf pencil
32. Red-blue pencil
33. Letter opener
34. Eraser
35. Ash tray
36. Tape measure
37. Spool
38. Small scissors
39. Napkin ring
40. Napkin ring,
41. Needle (for sewing)

The Block Design Test

In developing the ability to gather information from the world, the child learns to perceive shapes, colors, forms, objects, and space. To organize and use these perceptions, an individual must learn to do figure-ground discrimination, pattern recognition, spatial relationships, and pattern or pictorial reproduction.

In his study of field-dependence/independence, Witkin (1962) believed that there might be some relationship between his construct and intellectual functioning. To investigate this possibility, he chose a task which required the subject to separate the context into parts and use this in problem solving. The task selected was the WISC Block Design which had been determined as a measure of both simultaneous and successive thinking style.

In his development of the Block Design Task, Kohs (1923) suggested that mental development depended upon synthesizing, integrating, discriminating, differentiating, and analyzing processes. To measure these, he developed a task which required the subject to demonstrate these behaviors. Wechsler decided to simplify the task by changing the designs and block from multicolored patterns and designs to those using only two colors. It is Wechsler's version which is generally used in empirical studies.

Evidence that the Block Design Task measures the ability and the mode by which an individual orients objects within the environment into patterns and designs of the persons choice has been found in factor analytic studies. Cohen (1957, 1959) examined both the WISC and the WAIS and found that the Block Design as well as the object assembly task was highly correlated with perceptual organization. Sattler (1974) suggested that the task was a measure of visual-motor coordination as well as perceptual organization while Kaufman (1975) found it to be a useful measure of general intelligence.

Zimmerman and Woo-Sam (1973) point out that the task measures the ability to see meaningful spatial relationships, to analyze visually, and to synthesize abstract geometric designs. Coates (1975) agrees. In her study of field-independence and intellectual functioning in preschool children, Coates administered WPPSI and preschool Embedded-Figure Test (PEFT) to her subjects. She found that for both sexes PEFT loaded a common factor shared also by WPPSI Block Design and Geometric Design. Similar results were reported by Goodenough and Karp (1961) and Berger, Bernstein, et al. (1964). The task, thus, appears to measure whether an individual approaches and solves a task in a systematic or successive fashion or tries to solve it in a more global or simultaneous manner. The Block Design Task consists of 10 or 11 designs (depending upon the Wechsler version used) that are to be constructed from patterns presented in a booklet. The blocks are cubes with red sides, white sides, and red and white sides which may be used as the subject determines. Inasmuch as these blocks have been sold as toys and used in preschool programs, it is possibly a task with which many of the subjects will be familiar.

Myers-Briggs Type Indicator

The interrelationship of the perceptual, organizational, conceptual and personality systems is demonstrated in the research of the various advocates of cognitive style dimensions. Although the field-dependence/field-independence construct essentially measures the perceptual style of an individual, Witkin and Goodenough (1977) have been able to demonstrate a relationship between this style and the various adapting styles which individuals of the various orientations use. These response styles are essentially placed on an interpersonal as opposed to an impersonal continuum and are described in terms of the individual's personality or psychobehavioral modalities. Field-dependent individuals have been found to be oriented more toward an interpersonal orientation which emphasizes a strong interest in others, a need and desire to be physically close to people, a preference for social situations, and attentiveness to social cues. These individuals have also been found to use external references for guidance and information in novel or ambiguous situations and to seek help in solving problems. Field-dependent individuals have great strengths in getting along with people and working in cooperative, humanistic situations. Field-independent individuals, on the other hand, are less interested in other people and more interested in things. They are thus more likely to prefer nonsocial situations and physical as well as psychological distancing and generally seem to function quite independently.

The people-thing dimension selected for study seems to be associated with what Cantor (1981) refers to as the figure-ground model of social behavior. In this perspective of personality, the social behavior of an individual is viewed as the figure against the background of cognitive and affective activity within the individual. The behavior observed might thus be the result of planned behavior. On the other hand, it might simply be a reaction based upon expectations of situations, current impressions, or some complex interplay of both.

This aspect of cognitive style is particularly concerned with the perceptions of the social world in which individuals live. To understand the stylistic preferences of individuals, one must assess:

1. Whether or not the individual prefers interpersonal or impersonal contacts within the environment;

2. on what basis judgments are made about the person, event or situation, i.e., feelings or facts;

3. how the information about situations, people, or events is gathered - through the use of the basic senses or through intuition; and

4. how open-minded or closed-minded (rigid or flexible) an individual is when confronted with various people, situations, or events.

By determining the answer to these questions, it is possible to assess whether or not individuals are people rather than object/task oriented and whether they are receptive more to their own preferences or listen more to others in their environment. The Myers-Briggs Type Indicator was determined to be the best indicator of this stylistic preference.

The Myers-Briggs Type Indicator (Myers, 1962) is based on a conceptual scheme modeled after Jungian typology. The basic premise underlying the instrument is an assumption that there is a variation in human behavior due to basic differences in the way people prefer to use perception and judgment.

Perception, in this situation, is defined as the process of becoming aware of things, people, situations, or ideas. Judgment is the process of making decisions or drawing conclusions about what has been perceived. According to Jungian theorists, if people differ in their perceptions and judgments, they are very likely to also differ in their behavioral reactions, motivation, values, interests, and needs.

The MBTI is designed to assess a persons preferences in perception and judgment on four bipolar dimensions. The Extraversion and Introversion (E-I) dimension examines the individual's preference to people or thing information. An extravert has been found to be oriented primarily to the outer world and thus tends to focus his/her perception and judgment on people and events. The introvert, on the other hand, is oriented primarily to the inner world and thus concentrates upon concepts and ideas.

The Sensing or Intuition scale (SN) is designed to reflect the person's preference in perceiving information. If the person prefers to rely on the process of sensing, then information is best presented through one or more of the five senses. However, if the individual prefers the process of intuition, then the environment or information is best understood when presented with emphasis on ideas or associations.

The Thinking-Feeling (T-F) dimension reflects the person's preferences in making judgments or responding to information. The person oriented toward using the thinking style tends to discriminate impersonally based upon facts while the feeling person seems to discriminate more on the basis of personal values. This particular dimension has been found to have a sex-difference and is therefore scored separately for each group. The fourth dimension is the Judgment or Perception (J-P) dimension and is designed to determine which of the processes seem to dominate an individual's approach to the environment similar to Royce's (1974) theory of knowing.

The four dimensions are not independent but interlocked in the sense that the Extraversion-Introversion scale indicates the focus of cognitive activity, Judging-Perceiving describes its predominant nature, and the four functions involve its specific varieties. Both Jung (1923) and Myers (1980) conceptualize these variables as representing the outgrowth of different directions of development.

The MBTI is a forced-choice questionnaire designed to ascertain a person's basic preference on all four dimensions. Responses pointing in opposite directions bear different weights, thus enabling the evidence in each direction to be separately summed. By subtracting the smaller score of one direction from the larger, of the other, a basic preference is determined. Of particular importance is the fact that each person is classified on the basis of what the individual likes, not lacks. In other words, it permits a concentration on strengths rather than weaknesses.

Chapter IV

The Instruments and the Idea: Validation Studies

Because field-dependence/field-independence is the most often used cognitive style dimension with the best methodological development based upon empirical data, validation of the measures was done using the Group Embedded Figures Task as the predictive standard. This seemed to be the most reasonable approach as the field-dependence/independence construct is based upon a perceptual theory and is now being viewed as both information-processing as well as an adaptational preference (Davis, 1982; Witkin, 1978).

Field-dependence/independence as information processing

Suinn (1967) defines field articulation as the "analysis and structuring of the environment with parts of the perceptual field being experienced as delineated and discrete and with organization being imposed on the field." (p. 11). At one end of the articulation continuum is the differentiated individual and at the other is the global or diffuse person. The global quality of articulation suggests that the field as a whole dictates the way in which the parts are perceived.

During his study of the perceptual process, Witkin and his associates (1954) noted that individuals seemed to have a consistent preference for perceiving the environment. This observation was made on a perceptual task called the Rod-and-Frame Test (RFT). In this test, the subject is seated in a completely dark room and required to adjust the position of an aluminium rod to the true vertical. As a result of this experimentation, Witkin, et al. (1954, 1962) noted a variation in individual ability to ignore or de-emphasize irrelevant and misleading aspects of a situation. Witkin studied the relationship between the scores on the RFT and other tasks such as the Body Adjustment Test and the Embedded Figures Test. The high stability of the scores and the significant correlations between the perceptual tasks indicated to Witkin that these tasks are excellent measures of an individual's ability to overcome an embedding context.

This difference in perceptual functioning was later tied to the theoretical concept of psychological differentiation as used in the theories of Lewin and Werner (Baldwin, 1967). Based upon Witkin's observations, individuals are said to differ in their adapting behavior depending upon their perceptual preference. This variation is defined under the concept of field-dependence or field-independence. Individuals who are unable to disembedd information from its context in order to solve a problem are said to be holistic in their approach to visual information. These individuals are classified as field-dependent types. Individuals who can abstract the necessary parts from the totality of the material regardless of the distracting elements in the visual field are labeled as field-independent individuals.

The construct of field-dependence and independence is one of the most widely used types of cognitive style and is most used in determining stylistic preferences in cognition. Field-dependent individuals, for example, are extremely skilled at learning and remembering social material or learning materials with a social content. In addition, differences are noted in the effects of reinforcement used to enhance learning. Field-dependent individuals were more likely to learn if there are external referents and reinforcement while field-independents are more likely to set their own goals and provide their own reinforcement for learning. In presentation of the material, if the material is presented in a fairly unstructured manner, field-independent students are able to provide their own structure and relationships. Field-dependent students, on the other hand, have difficulty with unstructured materials and thus seem to prefer the partist approach to concept attainment (Witkin, et al., 1977; Goodenough, 1976).

As one examines the process of field articulation through the task of disembedding, several processes seem to be at work, e.g., perception, attention, recognition, differentiation, categorization, and thinking. Each of these dimensions have been the subject of much empirical and theoretical attention. However, for the purposes of measurement validation, let us define each briefly.

1. Perception. Perception is the fundamental cognitive process as it represents where the act of knowing and reality meet (Neisser, 1976).

The act of perceiving is an activity in which the immediate past and remote past come together. Gestalt theorists assume that individuals see only what they know how to look for, therefore, the perceptual cycle is a fairly selective one (Combs & Snygg, 1959). Based upon an individual's unique cognitive structure or schemata, explorations of the world are directed toward information which seems to be important at the time. Thus, perception is more than the reception and extraction of information, it involves the reception and extraction of only that information which the organism chooses (Vernon, 1970; Neisser, 1976). This is generally studied under the idea of "selective attention."

2. Attention. This process, as defined by Treisman (1969), is the selective aspect of perception. It is the central process used by an individual to select or reject aspects of the stimulus input. The process is often influenced by such factors as: (1) the field of view, (2) an individual's psychological environment (motivation) at the time of perception, (3) the time of exposure, (4) the presence of irrelevant or distracting elements, or (5) past experiences which give practice on direct attention toward the stimulus and presentation model (Vernon, 1970; Gibson, 1969). The attentional aspects of perception to be

included are associated with the distinctiveness, familiarity, and relevance of the cues; all three of which have distinctive cultural origins (Triandis, 1975).

3. Recognition, differentiation, and categorization. An important aspect of the perceptual act is having the ability to abstract or discover an invariant relationship among objects or events by filtering out irrelevant information (Bruner, 1960; Gibson, 1969). Although Fruth (1961) suggests that language is not a prerequisite to the recognition, abstraction, and classification of salient features, it is generally believed that this is the stage at which verbal labels and language enter the cognitive process. In addition, past experiences become a crucial variable in that they provide the previous memories on which the individual relies to perform the necessary activities (Gibson, 1969). The basic underlying function in this dimension is the learning of appropriate methods of coding the environment and then allocating the information or stimulus inputs to the appropriate categories.

Grippin and Ohmmact (1972) conducted a study which examined the relationship between field-independence/dependence and concept classification using objects, designs, and numbers. Although there was no significant relationship between field-independence and number concept, there was a significant relationship between this ability and handling of object and design concept formations. The authors concluded that these tasks called for a dominant perceptual mode of cognition and was enhanced if the individual had the ability to analyze the field and change perceptual perspectives.

In another study, Dickstein (1968) found that field-independent individuals were able to abstract the necessary attributes for categorization by making fewer choices and had a higher tolerance of irrelevant attributes. It thus appears that field articulation is also involved in categorization process as suggested by Messick and Fritsky (1963). As these authors indicated it is related to element articulation and permits the analysis of stimuli into differentiated parts.

4. Thinking style. A basic idea underlying the definitions of thinking is that the outcome should be some reorganization of the evidence. Bruner (1966) refers to it as "going beyond the information given." More important, the idea of thinking involves reaching some new end point.

Various styles in thinking have been explored. Bruner (1960) examines a bipolar style based upon intuitive as opposed to analytical thinking while Galin (1976) refers to linear as opposed to intuitive or holistic thinking. Regardless of the theory chosen, there seems to be an agreement that individuals chose different routes toward arriving at answers or decisions.

This is the area which seems to best fit Royce's (1974) description of knowledge preferences as preference for rationalism, empiricism, or metaphorism styles. Within the framework of each type, a preference for information was postulated with the rationalist style preferring facts and ideas, the empiricist leaning more toward observation and information gained from the senses, and the metaphoric individual seeing reality through intuitiveness and insight.

Having looked at the processes used in the task, let us now examine the instrument which assesses these processes.

Group Embedded Figures Task

The Group Embedded Figures Test (GEFT) was developed in 1971 as a group measure of the concept of field-dependence/field-independence. The items were selected from the EFT (24) and Gottschaldt figures (8). The normative sample on which the test was based included 168 undergraduate males and 169 undergraduate females from an Eastern liberal arts college (Witkin, Oltman, Raskin, Karp, 1971). A similar population was used by the authors to establish preliminary norms. The second sample included 242 undergraduate women and 155 undergraduate men.

Within the literature only a few studies were found which used the GEFT. One such study was done by Renna and Zenhausern (1976) using 337 college undergraduates from an Eastern college. Another study was that of Carter and Loo (1980) which used 266 undergraduates at the University of Calgary. Due to this limited evidence, it seemed important to do our own study of the GEFT to reinforce the normative data.

To check the similarity of norms for an Afro-American sample of college undergraduates, 45 volunteers were obtained from several classes in Afro-American Studies at the University of Wisconsin-Madison. This initial sample consisted of 21 males and 24 females.

When this Afro-American sample was compared with Witkin's quartile breakdown, over 50% of both males and females fell in the first quartile which would lead to the conclusion that Afro-Americans on the average are highly field-dependent. A comparison of the group based upon the Renna and Zenhausern (1976) normative data, however, suggests a much more normally distributed scoring and similar to the quartile rankings of this Afro-American sample (see Table 2 and 3).

Table 1

Present Sample Compared on Witkin's Quartiles

Quartile	Male	Female	Total
1 (0-8)F (0-9)M	10	15	25
2 (9-11)F (10-12)M	5	1	6
3 (13-15)M (15-18)F	2	4	6
4 (16-18)M	4	4	8
			N=45

Table 2

Quartiles of Previous and Present Male Samples

Quartile	Witkin	Renna	Shade
1	0-9	0-5	0-4
2	10-12	6-9	5-8
3	13-15	10-13	10-13
4	16-18	14-18	14-18
N	155	165	21
$\bar{X}$	12.0	9.23	9.05
S.D.	4.1	4.7	5.02

Table 3

Quartiles of Previous and Present Female Samples

Quartiles	Witkin	Renna	Shade
1	0-8	0-5	0-3
2	9-11	6-9	4-7
3	12-14	10-13	8-13
4	15-18	14-18	14-18
N	242	172	30
$\overline{X}$	10.8	8.91	7.70
S.D.	4.2	4.7	5.20

To enlarge the sample for comparative purposes, 31 additional students were obtained from introductory Afro-American Studies classes. This group, however, was of Euro-American origin which meant that of the 78 subjects, 31 were white and 47 were black. The sex distribution turned out to be somewhat similar with 30 male subjects and 48 female subjects. Again, a comparison of the quartile breakdown was done (see Tables 4 and 5) but in addition, information presented by Carter and Loo (1980) was also added.

As in the previous analysis the present sample was found to resemble the Renna and Zenhausern normative group rather than the original Witkin group or the Carter and Loo group. Why would this be the case?

Table 4

Quartiles of Previous and Present Male Samples

Quartile	Witkin et al.	Renna et al.	Carter/Loo	Shade
1	0-9	0-5	0-11	0-4
2	10-12	6-9	12-15	5-10
3	13-15	10-13	16-17	11-14
4	16-18	14-18	18	15-18
N	155	165	93	30
$\bar{X}$	12.0	9.23	13.85	9.23
S.D.	4.1	4.7	4.96	5.17

Table 5

Quartiles of Previous and Present Female Samples

Quartile	Witkin et al.	Renna et al.	Carter/Loo	Shade
1	0-8	0-5	0-9	0-5
2	9-11	6-9	10-13	6-8
3	12-14	10-13	14-16	9-13
4	15-18	14-18	17-18	14-18
N	242	172	173	48
$\bar{X}$	10.8	8.91	13.04	9.73
S.D.	4.2	4.7	4.12	5.0

The Renna and Zenhausern (1976) sample was reported to be more religiously affiliated and composed of students who are basically middle-class, first generation college students whose residence and life style centered around Metropolitan New York. This Afro-American sample was also urban-based and composed of first-generation socially mobile students. Similarity in situations might account for the similarity in norms. Both samples were significantly more field-dependent than the Witkin normative group.

A comparison of the means found that the Carter and Loo (1980) sample was considerably more field-independent than either the Renna et al., Witkin, or Shade samples. Although more information is needed about the Calgary and Witkin sample, it is very possible that urban-rural, as well as cultural regional differences, (cf. Shade, 1979) may account for these results. This evidence raises the issues of cultural, class, and sex variables which might affect individual performance on the GEFT.

Cultural diversity in field articulation

The evidence relative to field-dependence and independence as it relates to cross-cultural groups seems to suggest a relationship between social conformity and a field-dependent cognitive style. The idea of social conformity encompasses adherence to familial, social, religious, and political authority. It has been determined that adherence to one type of authority in a particular situation seems to influence the conformity patterns to other types of authority. In studies reviewed by Witkin and Berry (1975) and a study by Berry (1976), it was found that societies or tribes who use strict childrearing techniques or have rigid standards of conduct such as the Temme in Africa, Jewish Moroccan families in the Middle East, or Orthodox Jewish families in the United States are much more likely to be field-dependent than societies with fewer rules and less conformity emphasis. This same trend was noted by Kagan (1974) in his study of Mexican American children. Mexican children who are socialized to the traditional rural village roles in which family and religious conformity are emphasized have a different cognitive style preference than Anglo children who are urban residents and socialized toward less conformity. A more extensive review of this idea and other cross-cultural studies has been done by Witkin and Berry (1975).

In the studies done using Afro-Americans, this particular emphasis has not been used as a variable. It may be that social conformity has more of an effect than race or social class. Thus, in those studies where no race or class differences were noted in field-dependence or independence, perhaps the amount of social conformity and adherence to social, religious, or other socialization rules was uniform for both groups. While in those studies in which differences were found, Afro-American students may have come from the lower class, highly authoritarian, or religious homes while the Euro-Americans came from less demanding situations. This factor then could certainly account for the finding that in the majority of the studies, regardless of the measuring tool, and using the various versions of the EFT or Rod and Frame Test, Afro-Americans seem to be heavily oriented toward the field-dependent preference (Shade, 1981).

Social class

It is a common assumption that lower class children function at a different level on cognitive tasks than middle- to upper-class children. Literature in this area, however, does not provide any definitive trend about social class influence in relation to field-dependence or field-independence (Kogan, 1976;

Goldstein & Blackman, 1978). Although some studies do report socioeconomic differences, most seem to find that differences do not exist. Instead, those students or individuals who are successful in school or highly task oriented, regardless of class, seem to have developed a more differentiated approach to perceptual information than those who are less task or more socially or people oriented. In the various reviews of the studies done on the construct of field-dependence/field-independence, social class differences seem to be deemphasized.

Sex differences

In their early work, Witkin and his associates (1954) found that females tended to be more field-dependent than males. This supposition has become a oft quoted assumption (Kogan, 1976). Both review of the literature by Goldstein and Blackman (1978) and Shade (1981) suggests that this finding and assumption is questionable. Not only have many studies reported no significant differences between males and females but several, Carter and Loo (1980) and Lis and Powers (1979) reported females as more field-independent than males.

To some extent, the differences in sex, like the differences in race may be related to the task used to measure field-dependence. While no sex differences appear to be present in many studies using EFT type instruments, those using Rod-and-Frame Test measures seem to find males as being more field-independent (Goldstein & Blackman, 1978). In a pilot study using the Group Embedded Figures Test, Shade (1981) found that sex differences were not significant for either the Afro-American or Euro-American students, nor were differences found between males and females in a study done by Lasry and Dyne (1971).

The findings relative to sex differences among cross-cultural samples was also inconclusive. In studies using the EFT and Block Design Test, no significant sex differences were noted in Eskimo communities, Australian Aborigine, nor in Canadian Eskimo samples. Sex differences were, however, noted in some African communities or tribes and in New Guinea people (Witkin & Berry, 1975). Again, the review notes differences related to the task.

How reliable is the Group Embedded Figures Task?

Witkin et al. (1971) reports a reliability estimate of R = .82 for the Group Embedded Figures Test based upon the representation of two sections of the test with identical time limits. Other studies report similar results. Dumsah, Minard, and McWilliams (1973) report a correlation between Sections 1 and 2 of R = .84 (p = .005) for 30 male undergraduates. Lis and Powers (1979) used 22 sixth grade students to test the reliability and validity of the Group Embedded Figures Test. A reliability coefficient based on a test-retest situation was R = .75 (p < .01). The split-half reliability estimate for the sample was R = .83 using the odd and even items and R = .88 for Part 1 versus Part 2.

Estimation of the reliability of the GEFT for the Shade sample was done by correlating the nine-item second section with the nine-item third section scores. The coefficient was computed and corrected using the Spearman-Brown prophecy formula (Anatasia, 1976). A reliability coefficient of R = .74 was obtained for the Euro-American sample and a R = .87 coefficient for the Afro-American sample. When divided by sex rather than race, R = .91 was the estimated reliability for males and R = .81 for females. The test, thus, appears to have acceptable internal consistency for both racial and sexually diverse groups.

Is the Group Embedded Figures a valid instrument?

Widiger, Knudson, and Rorer (1980) used the group Embedded Figures Test in a study of convergent and discriminate validity of cognitive style and cognitive abilities. In the factor analysis, field-independence, disembedding, background memory, Gestalt Completion, and analytic and global ability were included as the first factor. The Group Embedded Figures Test loaded .82 on Factor 1. Although the principal purpose of the study was to prove that the GEFT was an ability rather than a preference measure, the authors were more successful in delineating the types of behaviors measured by the GEFT. As with the EFT, it appears that the GEFT determines the perceptually differentiating or the undifferentiating individual.

Although the individual EFT seems to be the preferred instrument, the authors suggested that the Group Embedded Figures Test developed by Oltman, Raskin, and Witkin (1971) is a useful substitute. This is probably the case in that the items included on this version are those which obtained the highest correlation with the individual EFT as well as the Rod-and-Frame Test. In their study of the relationship between the individual and group version of the test, Jackson, Messick, and Myers (1962) found significant positive correlations ranging from R = .62 to .84. The relationship between the group version of the EFT and the Rod-and-Frame Test, however, is questionable. In Witkin and associates (1971) sample fo college undergraduates, the Group Embedded Figures Test and Portable Frame Test had a negative correlation of R =-.39 and R =-.34 for males and females respectively. A high positive correlation, however, was reported for articulation of body concept based upon human figure drawings. Male undergraduates GEFT correlated R = .71 while the female undergraduates had a correlation of R = .55. In the Lis and Powers study (1979) using elementary school children, an R =-.60 correlation between the Group Embedded Figures Test and Rod-and-Frame test was reported for males with a .00 correlation for females, In the original Witkin et al. (1954, 1962) studies, the EFT was found to be highly correlated with the Block Design Test and the Picture Completion subtest of the WAIS. Similar findings were reported by Goodenough and Karp (1961). Therefore, to check the validity of the Group Embedded Figures Test (GEFT), for our purposes, a similar procedure was used.

Pilot study 2

A sample of 48 freshman and sophomore students in introductory courses in Afro-American Studies and Division of Education from two campuses in the University of Wisconsin system was obtained. All were volunteers and some were paid participants. Of the 48, 24 were Afro-Americans (11 females, 13 males) and 24 were Euro-Americans (12 were females and 12 were males). All were administered the GEFT, a version of the Kohs Block Design, and the WAIS Picture Completion subtest on an individual basis.

In the pilot study previously described (Shade, 1981), the correlations of the GEFT with these tests was R = .82 with the Block Design and R = .75 with the Picture Completion Test. Both correlations were significant. In this pilot, the Group Embedded Figures Test was found to correlate with the Block Design Test at R = .69 which was significant at the $p < .01$ level and with the Picture Completion Test at R = .34 ($p < .05$).

To test the idea that there is a unique Afro-American cognitive style, group comparisons between Afro- and Euro-Americans were made. The literature suggests that Afro-Americans are more likely to be global in their field orientation and less analytical in their approach to intellectual tasks (Shade, 1982). A comparison of the mean scores on these tests (see Table 6) revealed that, as in previous studies, Afro-Americans were significantly more field-dependent or diffuse in their perceptual style than Euro-Americans. This was true for both the male and female samples (males, $t = 6.19$, $p < .001$; females, $t = 5.68$, $p < .001$). However, no racial differences were found for this sample on the Block Design subtest which is considered to be a test of intelligence, and only differences among the female sample was found on the Picture Completion subtest ($t = 2.34$, $p < .05$). This difference was only minimally significant when compared with the differences of the means found on the GEFT.

Mean Scores on Field Articulation Measures

Measure	Black Males		Black Females		White Males		White Females	
	$\overline{X}$	σ	$\overline{X}$	σ	$\overline{X}$	σ	$\overline{X}$	σ
Group Embedded	8.00	4.92	8.00	4.96	12.42	5.02	11.42	4.56
Kohs Block Design	29.85	11.08	26.55	11.47	31.92	8.90	32.33	8.75
Picture Completion	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	14.67	1.87

Based upon the results of these pilot tests as well as the review of the literature it appears as if the Group Embedded Figures Test is a measure of cognitive style with which we can correlate the other instruments although questions relative to the factors which influence performance on the task still remain. These factors seem to relate to the coping or adaptational aspect of cognitive style. To understand this aspect, it appears that a particular situation must be included since each environment has its own specific demands. Inasmuch as schooling and performance in a formal school setting is one of the major concerns of the Afro-American community, it was decided to examine the relationship between cognitive style as patterns of learning within the public school environment.

Chapter V

Cognitive Style Requirements of a School Setting

Participants in the schooling process are generally stratified by age and provided with a specified material content which is thought to be appropriate for them. To determine how well each has mastered the information, participants are given tests designed to assess the quantity of concepts acquired. Based on the scores of the individuals on these instruments, classroom assignment and future exposure to certain content is determined. Because these allocations often influence future occupation, education, and social mobility, concern is generated about the variability of the competence demonstrated by individuals and groups.

The individual differences found in information acquisition are generally explained on the basis of variation in intelligence, reading level, chronological age, motivation, or social class. Recently, though, educators have begun to consider the possibility that some of the variation might occur because of an inharmonious fit within the in-teaching and learning processes.

The results of the explorations into this area indicate that students in the educational enterprise are most successful if their information acquisition approach has the following characteristics:

1. An attention style that focuses on the task itself, rather than on the people in the situation.

2. An abstraction ability that separates ideas and concepts into parts and reweaves them into a unified whole.

3. A perceptual style that leads to the abstraction of both obvious and nonobvious attributes that seemingly link things, ideas, or principles.

4. A perceptual style that facilitates the extraction of important information embedded in distracting influences.

5. A long attention span with prolonged concentrating ability.

6. An attending preference for verbal cues rather than nonverbal cues.

7. A reflective rather than an impulsive response style in problem solving.

8. A highly differentiated or analytical thinking style that leads to abstract and logical reasoning.

Cohen (1969), who did the seminal work in this area, suggests that this pattern represents a psychologically differentiated cognitive style which is particularly beneficial in a school setting. The style is in fact reinforced by the content of the school curricula, questions, and solutions desired on achievement and intelligence tests, and it is promoted by the use of current teaching methods. Those who use a different processing pattern seem to have difficulty.

This proposition was substantiated by other investigators. In their reviews of the relationships between various cognitive styles and indicators of success within the educational process, Kogan (1971) and Coop and Sigel (1971) found correlations which favor the analytical, field-independent, conceptually abstract, reflective student. Although the authors agree that this type of individual might be dysfunctional in other settings, they note that the students with this particular stylistic approach seem to perform well in schools.

This trend is also evident within the Afro-American population. Riley and Denmark (1974) found that Afro-Americans who were field-independent performed better on IQ tests, and Busse (1968) found that field-independent Afro-American males performed better on problem-solving tasks. Wilde (1973) examined the relationship between conceptual style and school success and found that those Afro-Americans who were more analytical were more likely to perform better in school. These same trends have been found on learning tasks and achievement test performance (Chepp, 1975; Ferrell, 1971; Schratz, 1976; Schwartz, 1972).

The relationship between cognitive style and academic achievement has also been found in the content area of reading. Stuart (1967) found that good readers, regardless of race or sex, tended toward a field-independent perceptual style while poor readers were more field-dependent. In another study, Peterson and Magaro (1969) found that field-dependent students took longer to master a reading-type task than field-independent students. As in test performance, the psychologically differentiated learner seems to excel.

This point of view is supported by Zamm (1973) in his examination of the reading skills of Afro-Americans. According to this author, reading requires visual and auditory discrimination as well as the ability to perceptually organize symbolic patterns and space. In addition, the student must be able to make a series of differentiated yet integrated responses. In other words, the child who is most successful in developing reading skills probably has a differentiated, analytical method of handling information processing rather than a global nonanalytic approach.

The consistency of the relationship of style and school success holds also for the studies of other identifiable cognitive styles. Afro-Americans who tend to be more reflective in their approach to work in order to make fewer errors have a better performance score on measures of achievement than those who are impulsive (Harrison & Nadelman, 1972; Reiss, 1972; Wilde, 1973). In a study by Vinson (1974) using the conceptual style system of Harvey, Hunt, and

Schroder (1961), Afro-Americans who were flexible in thinking and were abstract learners had higher grades than those classified as concrete learners. Although the difference was not significant and could have occurred by change, the authors suggest that it does demonstrate a preference by teachers for individuals who essentially epitomize the model student in stylistic preference.

Although all scholars of stylistic tendency have not chosen to study Afro-Americans, the available evidence could lead to the conclusion that the difference in school success is attributable to the use of sociocentric, field-dependent, nonanalytic categorizing information processing strategies by the segment of the population who have learning difficulties. A look at the way this style manifested itself in learning situations suggests that this is an approach to learning few teachers recognize or promote.

Afro-American cognitive style in a school setting

Bloom (1976) points out in his examination of the individual characteristics which affect school learning that every learner brings to the task a prior history of learning. This experiential background sets the stage for how well the student is able to learn from adults and under what conditions, the work habits to be used in the tasks, the attention to be paid to task demands, and a set of likes or dislikes about school, subjects, people, ideas, or other items which might be included in the school program. For Afro-American learners, these entry characteristics seem to consist of a preference for people-oriented situations and for spontaneous and novel stimuli and situations, an ability to understand nonverbal communication, and a highly affective orientation toward ideas, things, situations, and individuals (Hale, 1982).

Rychlak and many of his students have examined the influence of what many call affective entry characteristics to determine how these characteristics affect verbal learning, in particular, and also performance on intelligence and personality tests. In the early studies of affective factors and learning using elementary and college students, (Rychlak, 1975; Rychlak, Hewitt, & Hewitt, 1973) found that Afro-Americans were more likely to learn and remember trigrams for which they had expressed a positive preference; for Euro-American students, this affective assessment had no effect. This finding was not present in a study by August and Felker (1977) when self-concept was entered as a variable. In this study of fifth graders stratified by race and class, Euro-American students recalled liked words better than the Afro-Americans; in fact, Afro-American children with a high self-concept recalled more disliked words. Unfortunately, no real conclusion can be drawn from this inconsistency as the task used in the studies was changed. We find again, as did Simmons (1979) and Franklin (1979) that the task and situation seem to affect the stylistic preferences which emerge. In spite of this difficulty, Rychlak (1981) has presented as a part of his logical learning theory a proposition that affection is a specific factor in learning and enters not only into verbal learning but also into performance on intelligence and personality tests.

As one examines other studies in search of the relationship between stylistic preferences and learning, it becomes very difficult to dismiss the importance of this interaction by merely indicating difficulty with the measuring instruments. Silverstein and Krate (1975), for example, examined students in a central Harlem school and found that they could classify over half of those students as "ambivalents." The primary characteristics of ambivalent students were that they needed and rather aggressively sought teacher attention, nurturance, and acceptance. When this was not given, or not granted in sufficient quantity, the children became frustrated and angry or disruptive. The authors saw the students as needing constant encouragement, recognition, warmth, and reassurance in order for them to continue participating in the schooling process.

A similiar situation was noted by St. John (1971) in an ethnographic study of teacher effects on achievement. After several analyses of the data, it became very evident that Afro-American children demonstrated improved conduct, higher attendance records, and a belief in the teacher if taught by a child-oriented teacher. Characteristics of a child-oriented teacher included a demonstration of kindliness, optimism, understanding, adaptability, and general warmth. The traits seemed to be those of a more affectively oriented teacher rather than a task oriented instructor.

Although Cureton (1978) identifies this as a learning style preference for action-oriented teaching, this need for interpersonal contact seems to underlie the approach described in this essay about teachers who are able to increase the reading achievement of Afro-American students. Again, the author describes an intense, group, rather interpersonal approach which differs significantly from the traditional individually oriented, seat-work, quiet-room teaching usually advocated.

This evidence suggests that the differences in performance which relate to the school context and which continue to be found could be the result of a culturally induced difference in Afro-American cognitive style preference which emphasizes a person rather than on object orientation. Although this style is probably of tremendous advantage in social and interpersonal situations, it may be antithetical to school success since this setting is more object and task oriented and more impersonal, particularly from grades 4 and above. In fact, Kogan (1971) points out that "one might in fact legitimately claim that a cognitive style which facilitates fine articulation and sensitivity to social situations is for many purposes more highly adaptive than a style contributing to a better articulation of the physical setting" (p. 253).

The possibility of the presence of a school achievement oriented pattern and a social achievement pattern which might be antithetical to each other became the focus of the next series of studies. To insure that the idea was studied carefully and met methodological considerations, an examination of the instruments used was also done. In other words, the issue of Afro-American cognitive style was done using the multitrait, multimethod construct validation approach recommended by Kerlinger (1973).

Pilot 1

In the first pilot study, a group of 27 Afro-American high school students were obtained through a program at the University of Wisconsin-Parkside. This program, known as CHAMPS, was designed to offer instruction and counseling to promising minority youth. Participation in the program was aimed at improving the achievement levels of the students and encouraging the pursuit of post high school training. The students who volunteered were between the ages of 14 and 17. Of the 28 students, 7 were males and 21 were females.

The initial battery of cognitive style instruments was administered to the students in groups as well as individually. The results obtained on the instruments were as follows:

Table 1

Mean Scores on Cognitive Style Measures CHAMPS sample

Measure	Male		Female		Overall	
	$\overline{X}$	σ	$\overline{X}$	σ	$\overline{X}$	σ
Group Embedded Figure	8.14	(4.77)	5.47	(3.23)	6.50	(3.73)
Visual Attention	18.00	(3.21)	15.38	(3.60)	16.04	(3.64)
Object Sorting Task	11.14	(2.73)	10.81	(2.24)	10.89	(2.33)
Block Design Subtest	6.86	(1.07)	5.48	(1.57)	5.82	(1.56)
Myers-Briggs Type	10.00	(5.47)	6.28	(3.40)	7.21	(4.23)

Discussion

Examination of the overall adaptational style based upon the combination of the Myers-Briggs scales determined that the males in this sample were essentially intraverted, intuitive, thinking, and judgmental in their relationship to the environment (INTJ) while the females were more extraverted, sensing, feeling, and perceptive (ESFP). For males in a school setting this suggests that they could be either global or linear learners, they enjoy working alone, prefer open-ended instruction, and are good at paper and pencil tests. The general feeling of scholars who have studied Myers-Briggs Types suggest that this is the type of adapting style which lends itself toward achievement in school and work situations (Keirsey & Bates, 1978).

The ESFP type as evidenced by the females in this sample indicate linear sequential learners who need some structure, like audiovisual aids, prefer to understand the wholistic concept of work, like group projects, class reports, and need well-defined goals to facilitate their work. To some extent this personality may reflect sex differences in socialization but it may also reflect ultimate adaptation to the school environment. Research suggests that teachers prefer girls, or students who are conforming, pleasant, and cooperative (Gibson, 1981).

The results on the Group Embedded Figures Test was very similar for this high school sample as found in the previous college sample of Afro-American youth. When compared using the Witkin quartile limits for female subjects in his sample, it was noted that the majority of both samples fell in the first quartile, i.e., having found hidden forms (see Table 2). As before, this sample was predominantly field-dependent.

Table 2

Comparison of Scores on GEFT for Two Samples of Afro-American Youth

Quartile	High School Sample	College Sample
1 (0-8)	21	14
2 (9-11)	5	4
3 (12-14)	1	3
4 (15-18)	1	3
N =	28	24
Mean =	6.50	8.00
S.D. =	(3.68)	(4.83)

The continual finding of a preference for perceptual diffuseness and global thinking within the Afro-American population based on the GEFT poses an interesting possibility. Either we must consider this test as culturally biased against Afro-Americans regardless of previous norms or we must consider the possibility that the test is really a measure of perceptual style rather than the broader concept of cognitive style as Serpell (1976) suggests.

Cognitive Style or Perceptual Style?

Differences in spatial-perceptual functioning influencing cognitive performance have been found in several studies of Afro-American information-processing. In a study by Pierce-Jones and King (1960), both Afro- and Euro-American adolescents were given four tests. Two of the tests required the subjects to use the verbal mode of processing information, and two required the visual mode. The authors report that Afro-American youth did significantly better or were at least equal to Euro-Americans on the verbal synthesizing material but were very poor on the visual tasks.

In 1970 Sylvia Farnham-Diggory pursued this avenue of inquiry through three small studies in which Afro-American and Euro-American children, ages 4-10, performed three synthesis tasks. The material required the children to coordinate symbolic material with certain concepts and arrive at an inference. When verbal material was involved, racial differences did not emerge. However, when visual symbolic material was used, Afro-Americans did not perform as well as Euro-Americans. The author concluded that perhaps Afro-Americans have some spatial or visual information processing difficulty and then proceeded to remediate the difference through a training program. She found that when the distracting visual cues were removed from the presented material and substituted with memorized cues, the performance of Afro-American children was proved tremendously and approached the level of the Euro-American children.

These perceptual differences are most evident in performance on the Wechsler scales which seem to be the most commonly used measures of intelligence when racial comparisons are made. Cohen (1957, 1959) examined the WISC and WAIS scales and found three major cognitive factors present in these instruments. Factor I is labeled Verbal Comprehension which is found in the vocabulary, information, and comprehension subtests. Factor II is the Attention-Concentration element measured largely by the Digit Span, Arithmetic, and Coding subtests. Factor III is the Analytical or Spatial Perceptual aspect of the tests and is found in the Picture Completion, Block Design, and Object Assembly subtests.

The perceptual difference in performance on Cohen's (1959) Factor II (attention-concentration) and Factor III (spatial-perceptual ability) is, of course, most evident in the research by A. R. Jensen (1969) which examined racial differences in performance on basic learning tasks. Jensen's Level I tasks included Digit Span and serial-rote or paired-associate learning tasks. As reported by Goodenough (1976) and in studies by Rohwer (1971), Bridgeman and Buttram (1975), Guinaugh (1971) and Elkind and Deblinger (1969), group differences were not apparent on these attention-concentration tasks. However, on the Level II task represented by the Raven's Progressive Matricies, a visual-perceptual synthesizing test, Afro-Americans did poorly. Similar findings were reported by the other authors (Bridgeman & Buttram, 1975; Elkind & Deblinger,1969; Guinaugh, 1971; Rohwer, 1971).

Other studies have emphasized group differences on performance tasks. In 1954, Young and Bright did a study of 81 southern Afro-American children using the WISC. Although younger children seemed to perform better on all tests than the older group, when compared to the standardization sample Afro-Americans obtained significantly lower scores on the performance subtests, i.e., the Block Design and Object Assembly Picture Vocabulary tests. Similar findings were reported by Davidson (1950) on an adult sample.

Teahan and Drews (1962) examined the differences in Afro-American performance on verbal and performance tasks from a regional perspective. Although high on the comprehension and similarities tests, both northern and southern based Afro-American children scored significantly lower than the standardization group on the Vocabulary and Block Design tests. The southern sample had a much wider gap between the verbal and performance quotients.

In a study of racial differences in intellectual performance, Burnes (1970) compared middle- and lower-class Afro-Americans with middle- and lower-class Euro-Americans also using the WISC. Although the differences between socioeconomic classes were considerably more significant than those between races, the analysis of the subtest results showed much more racial variation on the Block Design, Object Assembly, Coding, and Maze subtests. Cole and Hunter (1971) reported similar findings for social classes.

In a more recent study of racial differences, Vance and Hankins (1979) administered the WISC-R to Afro- and Euro-American students matched on IQ and sex. Black males in the sample performed considerably better than white males on the information and verbal subtests; no female differences were noted. Black scores on the performance tasks, particularly Coding, however, were much lower than scores for whites.

This evidence, of course, has been cited numerous times as indicating an Afro-American perceptual defect. However, as Mandler and Stein (1977) point out, this hypothesis seems to be supported by little evidence. In their review of the evidence, Mandler and Stein (1977) noted that Afro-American children consistently had lower scores on the Block Design test. The authors, however, were unwilling to attribute this solely to the hypothesis of a perceptual defect because of the various cognitive functions which have been determined to affect test performance. For example, perceptual style alone does not influence all tasks, only certain ones.

Witkin and Goodenough (1977) suggest that this is indeed the case and that perceptual styles manifest themselves differently in various situations. When the solution depends upon taking the critical element out of context, one style is useful; this type of differentiation does not seem to matter in tasks requiring short-term memory or recall. For example, Witkin and his associates (1962) found that field-independent subjects obtained much higher scores on Cohen's (1959) Factor III subtests. Similar findings were reported by Goodenough and Karp (1961), Kagan, Moss, and Sigel (1970), and Rameriz (1973) for analytically oriented individuals. Scores for field-independent and analytical individuals were better when the tests required perceptual differentiation.

In the examination of performance on tests involving Cohen's (1959) Factor II, no differences between the perceptually differentiated and perceptually diffuse individuals were found, particularly on the Digit Span subtest (Goodenough, 1976; Robinson & Bennink, 1978). In his review of studies demonstrating the relationship between learning and memory and field articulation, Goodenough, (1976) concluded that field-independent individuals are no better than field-dependent individuals at associative learning as found in paired-associate, digit memory, or serial-rote learning tasks. Robinson and Bennink (1978) examined this same relationship and found that: while field-independent individuals tended to process the information more efficiently, there was no difference in the two perceptual problem-solving strategies when comparing actual performance on a memory test. Thus it appears that, while the differentiated perceptual style is required in spatially oriented tasks, in general, this style seems to have little relationship to performance in attention-concentration tasks.

Based upon this evidence and the findings exhibited on the Group Embedded Figures Test, it was concluded the task is probably a perceptual one but that the definition of perception is one more attuned to Gestalt psychology. As such the idea of perception encompasses not only sensory input but also individual definition and judgment about what is seen.

To determine if there were any relationships between the instruments since they are all essentially visual perceptual tools, Pearson correlation coefficients were produced for the battery(see Table 3). As might be expected, the Group Embedded Figures Test correlated significantly for this sample with the Block Design Test, but not with the others. Of some surprise was the lack of relationship between the Visual Attention Task and the GEFT since both supposedly required perceptual skill. It was, however, significant to note that each of the measures related significantly to one or more of the scales in the Myers-Briggs Type Indicator, particularly those which measured preferences in perception and judgment.

Pilot 2

To examine both the construct and the instruments further, additional samples were selected to add to the analysis. Approximately 10 miles from

Table 3

Pearson Coefficients for Cognitive Style Measures for

Afro-American High School Sample

	GEFT	Visual attention	Object sorting	Block	E-I	S-N	T-F	J-P
GEFT	-							
Visual attention	.08	-						
Object sorting	.003	-.15	-					
Block Design	.75***	.13	.06	-				
Myers-Briggs								
E-I Scale	-.31	.21	-.20	-.37*	-			
S-N Scale	.44**	-.02	.09	.45**	-.27*	-		
T-F Scale	.05	.22	-.27*	-.02	.14	-.19	-	
J-P Scale	.02	.42**	.02	-.06	.11	.05	.31*	-

***$p > .001$
**$p > .01$
*$p > .05$ for two-tailed test.

Racine is Kenosha, Wisconsin, a more homogeneous city primarily of working-class orientation. This city, like Racine is a part of the urban corridor which runs from Milwaukee to Chicago and is greatly influenced by the two cities. The television and radio stations of both Milwaukee and Chicago are major communication networks and citizens of the two areas often work in one or the other metropolitan areas. Both school districts are unified county districts which means that the school population contain both rural and urban students.

The second sample used for study was selected from a Kenosha school which was determined to have the largest minority population in the ninth grade. From this school, twenty-one students were randomly selected, 10 were males and 11 were females. Of the group 7 were Afro-Americans and 14 were Euro-Americans. This group was administered the five test battery in random order in both group and individually oriented settings. Results of this testing when combined with the previous sample yielded the following results:

Table 4

Mean Cognitive Style Scores for Combined Samples

	W(N = 14)	B(N = 35)	Overall
Group Embedded Figures	7.20	6.94	7.06
Visual Attention	14.40	15.43	15.01
Object Sorting	10.73	11.13	10.94
Block Design	5.67	6.09	5.92
Myers-Briggs Type	7.00(ESTJ)	7.00(ESTJ)	7.15

When comparing Afro-American and Euro-American scores on this battery, very little difference is noted on any of the tests. In fact, even the adaptational style comes out similar with the modal being an extraverted, sensing, thinking judgmental type of individual (ESTJ). This suggests a linear learner, who prefers group projects, some structure, an overall concept, audiovisual aids, practical tests, and even lectures as a part of the teaching strategies which are important to help them process information. The other tests seem to indicate that both groups are basically perceptually undifferentiated, sort material into rather narrow categories, but have trouble being analytical. It would also appear that both groups are less likely to be able to provide their own structure to work and extract ideas from distracting material.

These results suggest that the environmental demands of a working-class city like Kenosha might be the same as the inner-city environment which affects Afro-Americans thus requiring the same information processing approach as well as the same adapting style. Another explanation might be that the school environment serving low-income students, regardless of race seems to require and foster the same type of cognitive style. Of course, these results were viewed with caution because of the Euro-American sample size.

To correct for this sample size, a third sample of students was obtained this time from a school district approximately 20 miles from Racine. The individuals selected from Bristol, Wisconsin were chosen for exact age, grade, and sex match of the CHAMPS sample. Bristol is a rural community of about 6,000 citizens with no minorities in the system and is generally a homogeneous community with its own unique world view, lifestyle, and behaviors. Essentially, the town is also working class but with a rural orientation. The tests were administered by a student majoring in psychology and education who lives in the city and who had previously performed data collection for another research project.

A matched sample of 26 students was obtained with 6 males and 20 females. All were Euro-Americans. This group was given only the battery of group tests as it was impossible to secure adequate time for administration of the individually administered tests, i.e., the Object Sorting Task and the Block Design subtest. Group comparisons were thus made only on the Group Embedded Figures Test, the Visual Attention Task, and the Myers-Briggs Type Indicator.

[illegible]

Comparison Matched Sample

Instrument	CHAMPS		Bristol	
	$\overline{X}$ N=26	SD	$\overline{X}$ N=26	SD
Group Embedded	6.15	(3.37)	8.37	(4.74)
Visual Attention	16.20	(3.68)	15.50	(4.60)
Type	7.57 (ESTJ/ESFJ)	(4.16)	9.37 (INFJ)	(3.96)

A T test of the difference of paired observations revealed no significant difference on any of the dimensions. Thus, it seems even more likely that the cognitive style of the more working class is the same regardless of race. If class is not an issue, however, it may be that the differences noted in cognitive style may be found in achievement level. Students, regardless of race or class who do well in the school environment may develop the type of stylistic preferences on each of the dimensions which assist them in the school setting, while those who do not do as well acquire a cognitive style which seems to function inadequately within the school setting. If environmental influences the performance on the GEFT, then perhaps the consistent findings relative to GEFT performance is really a measure of environmental attunement rather than instrument bias.

Before proceeding to examine this question, a more careful examination of the instruments was done.

Instrument Analysis

Reliability of the Group Embedded Figures Test

To test the reliability of the GEFT, all cases previously sampled were examined to determine if some forms were more difficult to recognize than others. The combined college and high school samples yielded a total of 184 individuals who had taken the Group Embedded Figures Test for this study. A reliability coefficient and correlation matrix was computed on the first nine items of the GEFT, on the second nine items, and on all 18 items usually scored. The correlation coefficient was R = .84. On the entire test a reliability coefficient of .89 was obtained for the 184 cases. An analysis of variance of the results between and within individuals obtained an F value of 45.36 which was significant beyond the $p < .0001$ level. It appears that the Group Embedded Figures Test is a highly reliable instrument with a high degree of internal consistency.

Reliability of the Visual Attention Task

A similar analysis of the Visual Attention Task was done by examining the consistency between the identification of the small letters, the identification of the larger letters, and the identification of both sets of letters by people who performed this task. An alpha reliability coefficient of R = .87 was obtained for the large letters, an R = .79 was obtained for the identification of the small letters, and an R of .87 was found for the identification of both sets of letters. These coefficients were based upon a total of 54 cases. Again an analysis of variance between and within individuals produced an F ratio of 18.85 which was again highly significant ($p < .0001$). Again internal consistency of the measure used appears to be high.

Reliability of the Object Sorting Task

One of the identified difficulties with using Object Sorting Task is the analysis and interpretation of the data. In some studies, the Object Sorting Task was scored only on the number of groups while in others the level of abstraction was examined based upon the definitions and actual groupings (Gardner & Schoen, 1962). In the examination of the individually administered Object Sorting Task, four raters were asked to judge the type of categories used by the two samples who took this task to determine if modal categorization may have a developmental phenomena or if individual differences are present.

The four raters judging the results of the Object Sorting Task used in this battery were asked to judge whether or not the categories selected were naming categories, location categories, physical categories, use categories, or miscellaneous categories. The subjects for each sample, in addition in grouping items, had been asked to indicate reasons for their grouping. Interrater reliability coefficients were as follows:

Interrater Reliability Raters

	1	2	3	4
Rater 1	-			
Rater 2	.77	-		
Rater 3	.94	.90	-	
Rater 4	.83	.90	.93	-

Examination of the results of the types of categories indicated that the greatest number of items were grouped according to their perceived use and the least used categories were categories based upon physical descriptions. This suggests the possibility of a developmental phenomena on types of categories preferred. Studies by Denny (1974), and Denny and Lemmon (1972) confirm this suspicion. It was thus determined that the number of groups would be the primary focus of the Object Sorting Task, thus eliminating the need to make value judgments on types of categories, and that this information could be gathered just as easily through a group-administered instrument. The Clayton-Jackson Object Sorting (1961) paper and pencil test was therefore selected as a substitute for the individually administered Object Sorting Task. This test asks individuals to group 50 familiar objects in whatever groups seem appropriate and the equivalence range is scored by simply counting the number of groups required by each subject to categorize all objects.

In addition to the time problems presented by the Object Sorting Task, it was felt that the Block Design also created problems, not only because of time but because of its high association with the idea of ability. Since the primary focus of this study is to examine learned responses and avoid the nature-nurture argument, the Block Design was eliminated. In addition, identifying the processing used in performing the task proved unwieldy and unreliable. Two other tests were selected to measure this dimension based upon the previous cognitive style research of Warren Ten Houten (1971, 1976). Ten Houten (1976) postulated that the difficulty with urban Afro-Americans in the educational system is that they have developed a style of information processing which relies heavily on the right hemisphere.

To pursue this idea and to eliminate the Block Design Test with its possible difficulties, two tests were installed as a part of the battery in place of the Block Design. These tools were the Gestalt Completion Test, a version of the Street Gestalt Completion Test which Ten Houten (1976) contends is a right hemispheric test and a Picture Classification Test which meets the Paivio (1971) definition as a left hemispheric or verbal task.

Because of the perceptual and cognitive aspects of field articulation strategies, a number of investigators have attempted to relate field-dependence/field-independence to the functioning of the right brain hemisphere. The evidence in this area is rather contradictory and inconclusive (Garrick, 1978). However, as more information is gathered and more theoretical speculation advanced, it does appear that differences in methods of processing information are related to the preferential processing functions of the right and left cerebral hemisphere (Levy-Agresti & Sperry, 1968; Dimond & Beaumont, 1974). Since the model being used in this research suggests cognitive style is preference in information processing, the idea of preferred hemispheric use seems appropriate.

In the work done by Ten Houten, Afro-American cognitive style was examined from a visualizer-verbalizer perspective using the split-brain approach. His basic proposition is that the tendency to rely on different hemispheres correlates with positions and practices associated with an individual's social status. To prove the point, Ten Houten and his associates (1980) tested groups of Hopi Indians, rural white farmers and their wives, urban black males and females, and urban white males and females using tests oriented toward the right brain (visual) and toward the left brain (verbal). The assumptions that the analytical, sequential thinking would be more evident in socially dominant groups and that the intuitive, simultaneous approach more evident in subdominant groups was confirmed.

Further review of the literature suggests that the possibility of thinking styles (Bogen, 1969; Blakeslee, 1980; McKinney & Keen, 1974; Bruner, 1960) and that the difference in mental habits or cognitive styles might influence academic success. According to Blakeslee (1980), each individual has access to the use of both hemispheres and each hemisphere does what it is best equipped to do. Garrick (1978) in her review suggests that those who function best on a number of cognitive style measures seem adept at using both left and right hemispheric skills. There are, however, apparently individuals who develop mental habits which permit one hemisphere to dominate and repress the other. If, as Blakeslee points out, the individual is an athlete, artist, or a blues or jazz musician and is right-brain oriented, few problems develop. Of if the individual is left-brain oriented and functioning in the role of a scientist, mathematician, philosopher, or literary critic, the hemispheric function and occupation are congruent. It is only when meeting other situations which require duality, that the inability to function competently is noticed.

In their original conceptualization of the split-brain theory, and the culture-cognition paradox, Paredes and Hepburn (1976) suggested that the idea of cultural diverse cognitive processes presented by Cole and Scribner (1974) and other cultural anthropologists must be considered. However, they also point out that all cognitive strategies are not equally tied to language and may have some non-verbal approaches which should be investigated. A further examination of hemisphere specialization prompted them to conclude that the differences in information processing styles may not result from inadequate or or different transformations of information but may be the reliance on one hemisphere over another due to variations in practice or survival value.

Although the Block Design Task has also been determined to measure right hemispheric domination (Ten Houten, Thompson, & Walter, 1976), the Gestalt Completion Task is the most used instrument for this purpose primarily based on the work of Levy-Agresti and Sperry (1968) which found the right cerebral hemisphere to be specialized in Gestalt perception.

The Gestalt Completion Task

The Gestalt Completion Test was first developed by R. F. Street (1931) as a possible way of understanding the perceptual dimension of intellect. According to Street, the test was based on the Gestalt laws of perception which emphasized figure-ground discrimination, closure, and perceptual exactness.

The original test contained 15 items each of which was a picture puzzle in which parts of an object were deleted. To perceive the picture an individual must bring perceptual closure by causing the figure to emerge from the ground. The pictures were both white on black background and black on white backgrounds. Street's test was generated out of sixty pictures of objects which seemed to be in the life experience of the children tested. These sixty pictures were presented to 754 New York school children in grades 3-9. The items were eliminated if a single objective response could not be elicited and if marked sex differences occurred. The selected items were then given to 260 children, from the third and sixth grades in New York and a high school in New Jersey. A test-retest reliability coefficient of R = .74 suggested that the test was a relatively reliable instrument.

To validate the test, Street (1931) correlated it with the Kuhlmann-Anderson

Intelligence Test plus three verbal completion-type tasks and another picture completion task - i.e., the Healy II Picture Completion. The validation sample was composed of 210 New York children of Jewish, Italian, and Irish heritage. Results of the study found that the Gestalt Completion Test had zero correlation to the verbal tests and no correlation to the IQ test. However, the verbal tasks correlated highly to the IQ test. ANR = .28 correlation coefficient was found to indicate a small relationship between the two picture completion tests.

To examine these results further, a rotated factor analysis was done which produced two significant factors. One factor was found to be common to the three verbal tests and the Healy Picture Test. Street labeled this verbal expression. The second factor which he labeled a search factor, was found to be common to the Gestalt and the Healy as previously indicated. The second factor, however, was predominantly influenced by the Gestalt Completion Test.

Street concluded that while this "perceptual factor" did not seem to relate to IQ as currently defined, it was a factor which was apaprently involved in human cognition. Thus, further exploration was warranted.

Over a period of decades, Ekstrom, French, and Harman (1954, 1963, 1976) identified a cognitive factor which seemed to be measured by the Gestalt Completion Test and found in numerous factorial studies. They labeled this as a speed of closure factor. This factor supposedly represents the ability of an individual to unite a disparate field into a single concept.

For the most part investigators have determined that speed of closure is an ability which should somehow fit into one of the content categories in the structure of intellect model. Botzum (1951) wanted to test this assumption by determining how closely closure related to reasoning. Reasoning in this study was defined as propositional and appositional thinking styles. Forty-six tests were included in the battery including several of the reasoning tests used by Cyril Burt in his studies of intelligence. Of the tests, 22 were supposedly measuring propositional or analytical thinking and 14 measured appositional or relational thinking. The Street Gestalt Completion Test was included in the latter group.

A factor analysis of the battery identified 7 primary factors. Factor A which was most represented by letter and number series and pattern type tests was labeled induction. Factor B represented in tests such as analogies, reasoning, classification measures was labeled deduction. Factor C with tests like the Block Design, Gottschalk Figures and other hidden object puzzles was labeled flexibility of closure while Factor D was labeled speed of closure. The only tests which contributed to this latter factor were the Street Gestalt Completion, Incomplete Words Test and a Backward Writing task. The majority of the variance in this factor, however, was from the Gestalt test with a factor coefficient of R = .49.

When the primary factors were used to develop secondary groupings, the speed of closure factor showed up with a strong negative relationship (R = -.46) to number fluency, word fluency, and verbal comprehension factors. Botzum concluded that the Beta factor of which these factors were a part was really a bipolar fact with speed of association abilities at one end and speed of closure at the other end. He concluded that "individuals who are adept in working with the mechanical sort of tasks at the positive pole would...find difficulty in the more imaginative unfamiliar tasks required in the closure tests (page 377)." At this point in psychological history, the idea had not been advanced that this closure ability might in actuality be only information processing preference difference or cognitive style.

This confusion about the factor was noted in other studies. Adcock and Webberley (1971) again tried to identify some categories in Guilford's structure of intellect model. Again, the Gestalt Completion Test was included as a battery of ability tests. In the analysis of the common factors among the tests, the Gestalt test again showed up as essentially the primary contribution to one factor (R = .66) which the authors tentatively labeled "impulsiveness" with a question mark. The uncertainty about the factor led to a subsequent omission of the factor in the discussion which followed.

In a companion study, Adcock and another associate (Adcock & Martin, 1971) used the Gestalt Completion Test as one of a 16-test battery to measure the relationship between flexibility and creativity. The assumption of the study was that flexibility and originality have a commonality - i.e., the ability to transcend old patterns or "adaptability." The tests were administered to 188 tenth-grade students. The Gestalt Completion Test contributed .73 to an unnamed factor III which the authors concluded was not a general flexibility factor. This lack of relationship between speed of closure and cognitive flexibility had previously been noted by Frederiksen (1967) who actually found a negative relationship of R = -.41 between the factors.

For the most part, speed of closure has been identified as a perceptual factor which seems to contribute to individual cognitive performance. Almost without exception the factor is measured largely by the Gestalt Completion Test. In the Harris and Harris (1973) study of cognitive structure, the factor measures by the Gestalt test was called simple visualization which was the factor also identified by Fleishman, Roberts, and Friedman (1958). Other authors, apparently perceived the factor in the test as having some affective dimensions (Roff, 1953;

Thurstone, 1944). Cattell (1971) refers to the Gestalt Completion Test as representing restraint, timidity. Because of its apparent perceptual cognitive and affective dimensions, it seems that it might fit into the cognitive style framework representing preferred strategies of processing information. Wardell (1973) in fact suggested that the speed of closure factor is really cognitive style which demonstrates the individual preference or extensiveness in scanning behavior. Mos, Wardell and Royce (1974) included the Gestalt Completion Test in their factor analyses of other measures of cognitive style and identified 8 factors inherent in the instruments which included element articulation from articulation, flexibility of closure, perceptual speed, conceptual differentiation, and speed of closure. The speed of closure was interpreted as a perceptual factor.

Ten Houten and his associates concentrated on the epistemologic nature of the test, and used it to measure thinking style. Ten Houten (1971) examined the concept of field dependence/field independence and decided to concentrate on the analytical vs. global thinking dimension as it related to the use of the different sides of the brain. Through a discriminant analysis technique, Ten Houten, et al. (1976) found the Street Gestalt Completion Test to be highly correlated with appositional or relational (simultaneous) thinking and the WAIS Similarities Test to be correlated with analytical or propositional (successive) thinking. The tests were found to significantly separate groups based to proportion of responses.

A validity study by Widiger, Knudson, and Rorer (1980) which looked for correlation between global and analytical thinking and the field independence dimension found that their was apparently some commonality in the tests as both appeared in their first factor. The tests which were loaded on this factor were Advanced Progressive Matrices (.83), Analytical and Global ability tests

(.82, .68), the Group Embedded Figures (.82), the Background Memory task (.59), and the Gestalt Completion Test (.67). Although the authors chose to give the factor an ability name and thus argued that cognitive style was really an ability rather than a strategy, examination of the requirements of each task could have stimulated a choice of a label of perceptual differentiation or cognitive closure.

Based upon this commonality and the apparent multidimensional aspects of the factor, the Gestalt Completion Test was added to the battery to examine the extensiveness of an individuals scanning preference as an aspect of the information differentiation dimension. The test chosen was the 1962 Educational Testing Service version of the Gestalt Completion Test which had been used with Wisconsin student populations by Harris and Harris (1973).

Cross-cultural Use

Sex differences. The original test found no significant sex differences on the test, but it should be pointed out that items which registered severe sexual differences were eliminated from the test. Whether or not the ETS versions were monitored in this way is not known but sexually biased items have not been identified by others who have used the test. Unfortunately a large percentage of the studies have used all male samples.

Ethnic variation. Ten Houten (1980) hypothesized a variation in cognitive strategy selection due to social status. According to his study groups who are more likely to be oppressed or not a significant part of "mainstream" American are hypothesized to think in a more global, relational manner than in an analytical, sequential style. The use of the Gestalt Completion Task and the WAIS Similarities which requires abstraction and classification substantiated the hypothesis in a multicultural, multigeographical sample.

El-Ahd (1970) used the test as a part of the battery to determine the influence of experience and education on East Africans. The Gestalt Completion Test was listed as a measure of visual cognition and did appear to be influenced by previous socialization experiences.

If the results of the previous study were not chance occurrences, it seems possible that Afro-Americans, who appear to rely heavily on their senses to gather information, as found on the Myers-Briggs Indicator, will be extremely successful in the visual reconstruction task as required by the Gestalt Completion Task.

The Picture Classification Task

The task chosen to represent the left brain of verbalization function of the thinking process was the Picture Classification Task developed for research in the strategies of concept attainment by Harris and Harris (1973). The task consists of a series of 20 items each of which contains three pictures of objects. The subject is asked to choose a fourth object which is similar in some attribute from a group of three other objects. The task was perceived as resembling the WAIS similarities test in that it asked the individual to arrive at the notion as to why some objects belong together and others do not and to do so by generating and testing hypotheses concerning the attributes of the concepts. This was essentially the only task within the battery which rather definitively measured the move from the perceptual to the conceptual level of thinking by asking for the formation of concepts.

Assuming that Ten Houten is correct and that a concept formation task is oriented toward one hemisphere and the Gestalt Completion task toward the other, it was postulated that a negative correlation would be found on the performance of the two tasks when a pilot group of individuals was tested. To check this assumption 16 students (10 females and 6 males) were solicited from the Afro-American student body at the University of Wisconsin-Parkside to take the two tests. The overall mean obtained by this sample on the Picture Classification Task was 17.0 (SD = 2.19) and an overall mean on the Gestalt Completion task of 18.1 (SD = 1.93). A Pearson correlation coefficient of -.25 was obtained which indicated a negative relationship between the tasks.

To check the use of these tasks further as a part of the final battery, they were included in the battery given to the pilot group in the Racine and Kenosha School District prior to performing the validation study.

Pilot 3

To assess the validity of the tests to be used within the Racine and Kenosha School Districts to measure cognitive style, 90 students were randomly selected from all ninth-grade students in Racine, Wisconsin and from two junior high schools in Kenosha. The Kenosha Schools were assigned by the district as they were perceived to represent the schools having the best socioeconomic and ethnic group mixture.

Ninth-grade students were selected as the primary focus age because of their stage of development. The adolescent of this age is at a crucial period in that he or she is beginning to prepare to enter the work world, is beginning to think seriously about future educational programs. If the youth has not acquired the basic skills, it is also possible that the frustration and anxiety of this will lead to dropping out of school or difficult behavior. It is during this period that the individual is also to develop and increase formal and abstract thinking capabilities which are critical to future educational success.

The developmental expectations set forth by Werner and Piaget (Ausubel & Sullivan, 1970) suggest that young children tend to be more global in their orientation to information and develop a more differentiated approach as they get older. Witkin, in his early works, found that children made this change between the ages of 10 to 13 in particular and developed only slightly thereafter (Goldstein & Blackman, 1978). After 17, little difference between the differentiation ability at that age and later adulthood could be detected. Denny (1974) noted similar developmental changes in categorization ability. The use of ninth-grade students will permit us to examine the dimensions of cognitive style at an age when development of skills should be almost completed.

The tests were administered on a group basis over a peirod of three to four days. In the Racine school district, students were tested during their homeroom period in order not to disturb their instructional process. The students in Kenosha were tested during their study hall periods. Of the 90 students selected and agreeing to participate, 74 completed the entire battery. Of the 74, 33 were males and 41 were females. Afro-Americans were represented in the sample in proportion to their population.

The following mean scores were obtained:

	Male		Female		Overall	
	$\overline{X}$	σ	$\overline{X}$	σ	$\overline{X}$	σ
Group Embedded Figures	9.97	4.97	8.85	4.88	9.34	4.92
Visual Attention	13.21	3.94	12.89	4.13	13.04	4.02
Picture Classification	14.21	4.00	14.19	3.50	14.20	3.71
Gestalt Completion	15.21	3.91	15.65	2.72	15.45	3.29
MB-Type	8.29	4.44	6.45	3.56	7.25	4.04
Myers Briggs						
EI Scale	E*8.54	20.68	E*8.25	23.17	E*8.38	21.9
SN Scale	S*5.32	22.60	S*11.20	16.84	S*8.63	19.64
TF Scale	T*9.45	20.05	T*1.10	16.83	T*4.74	18.64
JP Scale	P*9.06	26.95	J*1.05	24.9	P*3.36	26.15

*Letters denote pole to which mean score applies.

To determine if any relationships existed between the instruments, Pearson Correlation Coefficients were obtained with the following results.

Correlation Matrix Pilot Study 3

	GEFT	VA	PC	GESTALT	EI	SN	TF	JP
GEFT	-							
Visual Attention	.21*	-						
PictClass	.30**	.22*	-					
GESTALT	.28**	.21*	.07	-				
EIScore	-.13	-.13	.04	-.06	-			
SNScore	.27*	.27*	.18	.17	-.10	-		
TFScore	.01	.26*	-.08	.13	-.20*	.19*	-	
JPScore	.27**	.17	.19*	.18	.04	.51***	.15	-

* - p = < .05
** - p = < .01
*** p = < .001

This time, significant correlations were found for all the visual information-processing instruments. A factor analysis of the results identified three basic factors. The first which contributed approximately 60% of the variance was found in the Embedded Figures, the Visual Attention, the Picture Classification, the Gestalt Completion, the Sensing as opposed to Intuitive Scale, and the Judging-Perceiving Scale of the Myers-Briggs Test. This factor was tentatively labeled perception. The second factor was positively related to the Thinking-Feeling Scale of the Myers-Briggs Type Indicator and contributed 22% of the variance. This factor was labeled emotional involvement. The third factor was found on a limited basis in the Embedded Figures, Visual Attention, Picture Classification, and Gestalt Completion. This factor was found to contribute 18% of the variance between the instruments and was labeled judgment.

The graphic representation of the factors comparing factors 1 and 2 suggest that there is a correlation between the Group Embedded Figures, and the Picture Classification Task; between the Visual Attention and the Gestalt Completion; between the S-N scale and J-P scale of the Myers-Briggs and between the Thinking-Feeling scale and the Extraversion-Introversion scale. We thus seem to have tests which measure analysis, perception, preferred ways of gathering information, and preferred approaches to relating to the world.

From these results and previous studies, a final battery was assembled to determine individual preferences for processing information and individual preferences to adaptational strategies. This cognitive style battery is included in the following instruments:

The Group Embedded Figures Test - to examine perceptual discrimination and analytical skills. Cognitive Style Dimension: Field-Dependent or Independent Personality.

The Visual Attention Task - to examine visual scanning and attending approaches. Cognitive Style Dimension: Levelling or Sharpening Scanner.

The Object Sorting Task - the Clayton-Jackson substitute for the Goldstein-Scheerer Test was placed in this slot to provide a group test rather than an individually administered test to save time. Because of the assumption that there is a selective attention process working which distinguishes Afro and Euro-Americans, it was determined that this test should be included to examine broad. The task seems to include visual scanning as well as abstracting, surveying, and integrating preferences. It therefore seems appropriate as a way of examining the idea that Afro-Americans may be more global and diffuse in their processing of information rather than highly articulated. Cognitive Style Dimension: Lumping or Splitting.

The Gestalt Completion Task, and the Picture Classification Task as a mea- of perceptual closure. Cognitive Style Dimension: Simultaneous vs. Successive Processor.

These tasks will examine the process of attending, perceiving, and switching in the processing of information taken in from the environment. The identification of modal types, as well as the various scales of the Myers-Briggs Type Indicator, will be used to assess the judgment or decision making efforts of individuals to determine their preferences for handling the information with which the individual is confronted, and whether or not there is a preference for social or people information or more natural object information.

The Myers-Briggs Type Indicator - a test which provides examination of the underlying personality to each of these dimensions. Of most importance is the idea of examining the person vs. object preference or social vs. asocial personality which is said to distinguish between achievers and nonachievers in this society (McClelland, 1961). Cognitive Style Dimension: Person or Object Orientation.

Based upon the literature and pilots, it is hypothesized that Afro-Americans who perform well in the school setting will be:

1. field-independent and analytical,
2. perceptually sharp while knowing when to ignore certain stimuli, thus,
3. broad categorizers.

It is also likely the achievers will be equally competent in both right and left hemisphere oriented processes, but because of their person-oriented culture, these individuals will be more extraverted and sensory in their orientation to the world.

Chapter VI

Afro-American Cognitive Style as a Variable in School Success

In recent years, proponents of possible learning style differences suggest that Afro-Americans may have developed a different culture in response to discrimination, slavery, and ghettoization. In addition to the unique communication patterns, family structures, art forms, and world view, it is the contention of these theorists that Afro-Americans also developed a culturally specific method of processing information. This processing strategy, while effective in social situations, is seen as being different than the one required in a typical educational setting (Cohen, 1969; Hilliard, 1976).

Using the model of information processing developed by Das, Kirby, and Jarmon (1975) based upon Luria's thoughts on the subject (see Figure 1), it appeared that learning involves the processes of perception, attention, memory, thinking, and decision-making. Individual diversity in the use of these processes is often studied under the concept of cognitive style, therefore the variables selected for the study of Afro-American learning style were various cognitive style dimensions. For perceptual style, the field-dependence/independence dimension was designated; for attentional style, the Visual Attention Task; for abstractional and evaluating style, the Object Sorting Task, and the Gestalt Completion Task and Picture Classification Tasks were given as a way of examining successive and simultaneous processing style. The Myers-Briggs Type Indicator provides a four-dimensional look at the planning and decision making process which individuals use to choose their behavior in any given situation.

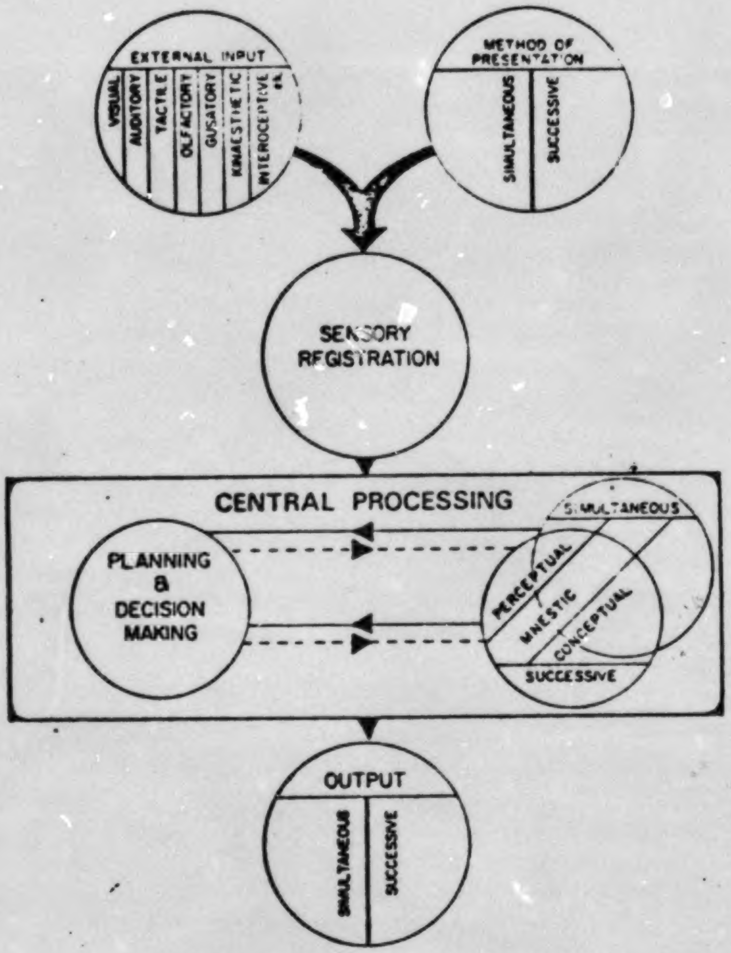

EXTERNAL INPUT
VISUAL
AUDITORY
TACTILE
OLFACTORY
GUSATORY
KINAESTHETIC
INTEROCEPTIVE
METHOD OF PRESENTATION
SIMULTANEOUS
SUCCESSIVE
SENSORY REGISTRATION
CENTRAL PROCESSING
PLANNING & DECISION MAKING
SIMULTANEOUS
PERCEPTUAL
MNESTIC
CONCEPTUAL
SUCCESSIVE
OUTPUT
SIMULTANEOUS
SUCCESSIVE

Figure 1. Model of information integration.

Sample

From the same ninth-grade population in the Racine Unified and Kenosha Unified School Districts, 180 students were randomly selected based upon race, sex, and achievement level. The original sampling was to provide equal numbers of Afro- and Euro-American students and an equal number of males and females. The achievement levels were determined based upon stanine scores on district achievement tests. The high achievement group was defined as those whose average stanine scores were 7, 8, 9; the medium achievement group included those whose stanines were in the 5th and 6th level; while the low achieving group includes the first three stanines. The medium stanine group was included only for Euro-Americans because it was found that the top Afro-American group in the school districts did not approach the top stanine levels. Their scores were apparently more comparable to the middle or average achieving white group, thus this comparison was deemed necessary.

After securing permission of the parents, the children, and the school personnel, the tests for each dimension were administered either during a two hour period on one day or during homeroom period of 20 minutes for four consecutive days. The final sample consisted of 135 students, 59 Afro-Americans and 76 Euro-Americans (60 males and 75 females) who completed all of the tasks.

Results

If considered in homogeneous groupsings based on race without the interjection of the achievement variable, the results would appear to indicate that Afro-Americans have a different pattern of cognition.

These results would seem to indicate that Afro-American students are perceptually diffuse rather than differentiated as measured by the GEFT. This

Table 1

Mean Scores on Cognitive Style Dimensions by Race

Instrument	Black Mean	White Mean	Significant level of difference
Group Embedded Figures	6.49	10.14	$p < .001$
Visual Attention	13.14	14.12	N.S.
Object Sorting	17.49	15.21	$p < .01$
Picture Classification	13.22	14.44	$p < .01$
Gestalt Completion	14.88	15.55	N.S.
Myers-Briggs Type	ESTP	ESFJ	$p < .005$

inability to differentiate shows up not only in the Group Embedded Figures Task but also the Picture Classification Test which also requires perceptual differentiation of visual information. This lack of differentiation was not evident, however, on the Object Sorting Task which required the student to read a word, visualize the object, then put it into some category which seemed appropriate to him or her. This sorting type of differentiation revealed a higher degree of functioning for Afro-American students than Euro-Americans.

When this difference in perception and judgment was measured by a personality test (i.e., the Myers-Briggs) rather than through the use of visual processing tasks, other similarities and differences emerged. Based upon the results of this personality indicator, both groups appeared to be extraverted and sensing. Extraversion indicates a sociability need which means that while both go back and forth between extraverted and introverted, it would appear that these students prefer activities which require social interactions, quick action, and communication (Lawrence, 1979). More important, the students appear to rely on people and sources within their environment for guidance and stimulation. This commonality may be the result of the developmental stage of ninth-grade students who are just entering a period of independence seeking and are heavily oriented toward peer group pressure. The Sensing orientation indicates a need to rely on experience rather than theory, a trust of the conventional and customary ways of doing things, a preference for relying on what is known and what is real and the need to move through tasks in a systematic step by step fashion. Again, this similarity may be indicative of the developmental stages of the students.

The variation in racial patterns comes in the Thinking-Feeling dimensions and in the Judging-Perceiving dimensions. Afro-Americans appear to be, on the average, Thinking and Perceptive while Euro-Americans, on the average, appear to be more Feeling and Judgmental. The Thinking orientation as measured by the Myers-Briggs indicates the need to weigh facts and consequences objectively, a sense of fairness and justice, and arrive at rather tough-minded decisions. The preferred processes which are used to gather the information for making decisions seems to rest with the senses. In other words, Afro-Americans prefer to make decisions based upon what they see, hear, touch, or observe. This suggests a high receptivity to the world around them, a reality-based orientation. To the type theorists (Myers, 1980) this suggests that new things, ideas, and concepts which cannot be grasped through the senses are less real to these learners and thus much less acceptable. Myers also suggests that learners of this personality type find mysterious things rather distasteful, thus new ideas are never wholly liked or trusted until there has been time to master it. In school, these individuals seem to have little regard for books because they prefer first-hand or practical, real-life experiences. Van de Hoop (1939) sees these individuals as good observers, having the capacity for perception of details, and for practical evaluations, particularly as it relates to interpersonal interactions and concrete problems.

Euro-American students at this age, however, seem to be more feeling types which suggest a high understanding and development of accepted values and standards and a knowledge of what matters most to themselves and other people. The Judging orientation as found on the type indicator suggests that this group tends to prefer to organize and plan their lives rather carefully, use their energy to control events, and they prefer to make decisions based upon minimum information. The differences between Afro-American and Euro-American students at this age appears to be the difference between how behavioral decisions are made.

When the results of the performance on the cognitive style measures were compared by race and achievement level, other patterns emerged. In general, students who were considered competent in school as determined by their scores on achievement tests, tended to be more perceptually differentiated than those who did poorly. They also seemed to have a different motivational and selective attention pattern. This pattern was evident in both the Afro-American and Euro-American samples (Tables 4 and 5). The instruments which seemed most sensitive to these differences were the Group Embedded Figures Test and the Myers-Briggs Type Indicator.

Within each group, the most significant difference for Afro-American low

Table 2

Means on Cognitive Style Measures for High Achievers

	Black Hi	White Hi	Significance of difference
GEFT	8.1	14.1	$p < .001$
VISATN	14.3	15.4	N.S.
OBSORT	16.5	14.3	$p < .05$
PICTCLAS	14.1	16.2	$p < .005$
GESTALT	15.6	15.8	N.S.
TYPE	Extraverted Sensing Thinking Judging	Introverted Intuitive Thinking Judging	

Table 3

Means on Cognitive Style Measures for Low Achievers

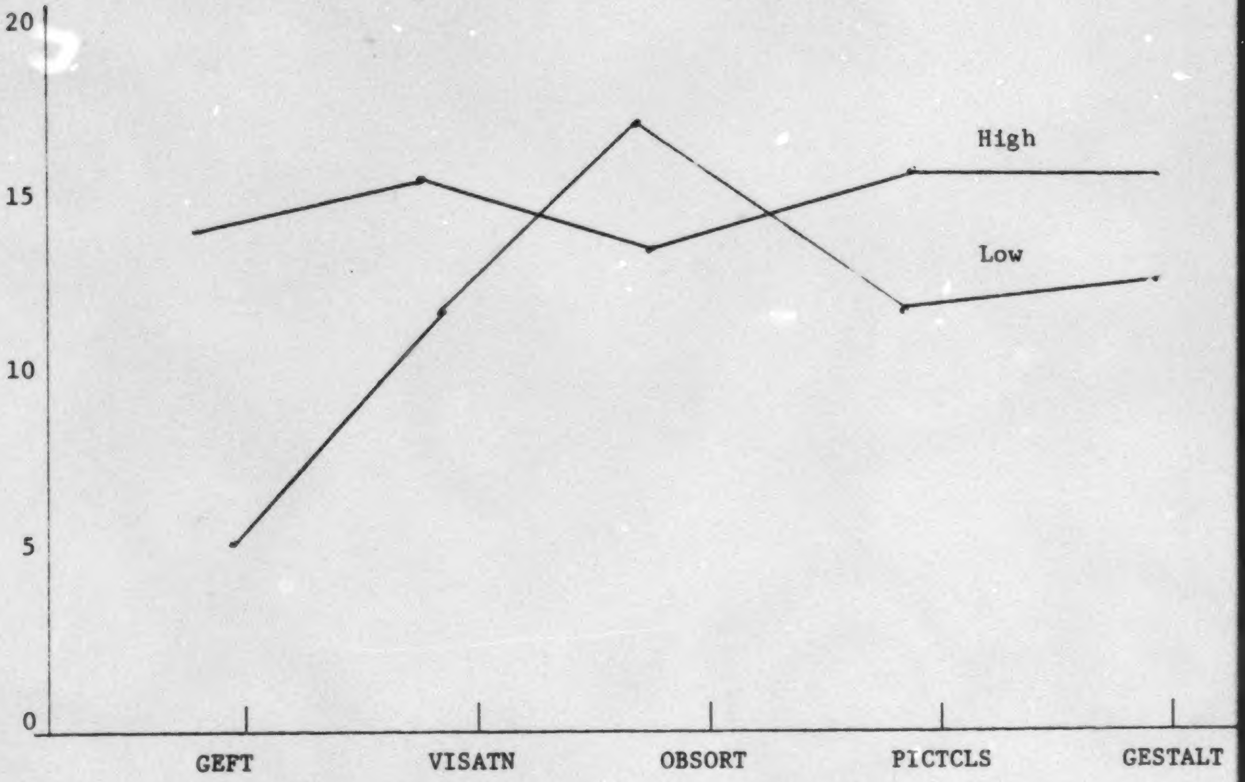
	Black Lo	White Lo	Significance of difference
GEFT	3.9	5.9	N.S.
VISATN	11.7	12.3	N.S.
OBSORT	19.4	16.0	$p < .05$
PICTCLS	11.5	12.6	N.S.
GESTALT	12.4	14.8	$p < .05$
TYPE	Introverted Sensing Thinking Perceptive	Extraverted Sensing Feeling Perceptive	

Table 4
Comparison of Means on Cognitive Style Measures for Afro-Americans Only

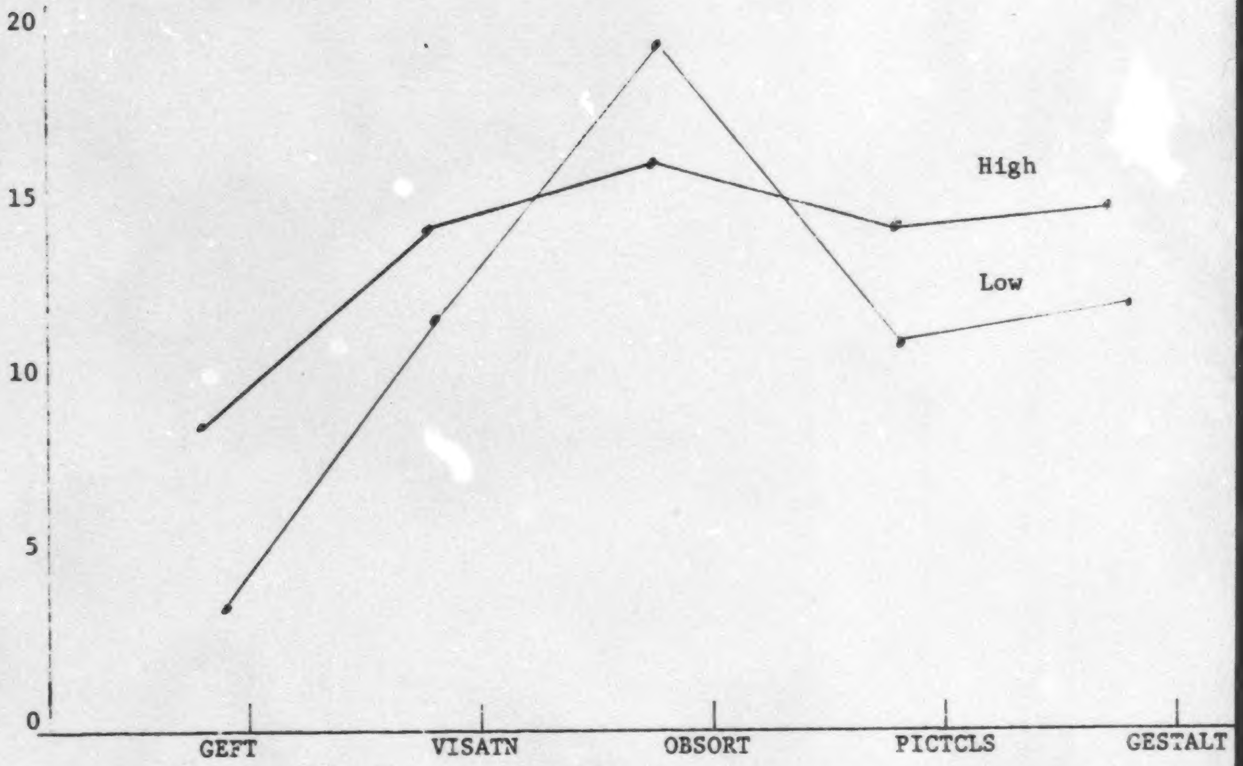
	Black Hi vs. Low		
	Difference	T	Significance
GEFT	4.15	3.84	$p < .001$
VISATN	2.15	2.03	$p < .05$
OBSORT	-2.87	1.68	$p < .05$
PICTCLS	2.63	3.48	$p < .001$
GESTALT	3.10	2.84	$p < .005$

Table 5
Comparison of Means on Cognitive Style Measures for Euro-Americans Only

	White Hi vs. Low		
	Difference	T	Significance
GEFT	8.22	10.02	$p < .001$
VISATN	3.16	3.075	$p < .005$
OBSORT	-1.70	1.41	N.S.
PICTCLS	3.58	3.58	$p < .001$
GESTALT	1.04	1.34	N.S.



Profiles of white sample.



Profiles of black sample.

Table 6

Summary of Analysis of Variance By Achievement Levels

Variable	MS	F	Significance
Group Embedded Figures	16.32	31.87	P <.001
Visual Attention	12.99	8.32	p <.001
Object Sorting	26.82	2.41	p <.10
Picture Classification	5.86	21.68	p <.001
Gestalt Completion	9.84	5.32	p <.006
Myers-Briggs Type	16.20	11.57	p <.001

df=2,129

Table 7

Summary of Analysis of Variance By Race

Variable	MS	F	Significance
Group Embedded Figures	16.32	27.17	p <.001
Visual Attention	12.99	2.47	N.S
Object Sorting	26.82	6.44	p <.01
Picture Class	5.86	8.53	p <.004
Gestalt Completion	9.84	.26	N.S
Myers-Briggs Type	16.20	9.20	p <.003

df=2,129

Table 8

Summary of Analysis of Variance by Race X Achievement

Variable	MS	F	Significance
Group Embedded Figures	16.31	3.48	p <.03
Visual Attention	12.99	.46	N.S
Object Sorting	26.82	.35	N.S
Picture Class	5.86	1.36	N.S
Gestalt Completion	9.84	5.75	p <.004
Myers-Briggs Type	16.20	.23	N.S

and high achievers in addition to the other two instruments was found in the performance on the Gestalt Completion Test. Unlike the Ten Houten (1976) study, the Afro-American achievers were better in this spatial task than the low achievers, and were not significantly different than Euro-American achievers. Within the Euro-American sample, the high achieving students were significantly better on the Visual Attention (scanning) Task than the low achievers, although no significant difference was found between black and white high achievers on this task.

As in the previous study, little difference in the processing patterns or motivational patterns were noted when Afro-Americans and Euro-Americans of rather similar performance and/or social strata were compared. The Afro-American high achieving group, on the standardized measures, actually were considerably lower than the Euro-American achievers in stanine scores, even though they were the highest achieving ninth-grade students in the districts. When compared with Euro-American students of exactly the same performance level, no significant differences emerged except on the Gestalt Completion Test. Even the adaptational style on the Myers-Briggs emerged in a similar pattern (see Table 9).

Is there a unique Afro-American pattern of cognition?

When the level of performance is carefully controlled, it appears that Afro-Americans cognitive patterns are no different than their Euro-American counterparts. There is, however, a significant difference in these patterns when an academic competence factor is interjected. As Cohen (1969) suggested, there appears to some, distinct perceptual, cognitive, and affective approaches to the world which are rewarded within the school setting. This pattern is exceeding evident in the Euro-American high achievers in this sample and less

Table 9

	Black Hi (N = 31)	White Med (N = 26)
Group Embedded Figures	8.1	9.8
Visual Attention	14.3	14.5
Object Sorting	16.5	15.5
Picture Classification	14.1	14.2
Gestalt Completion	15.7	14.6
Myers-Briggs Type	Extraverted Sensing Thinking Judging	Extraverted Sensing Thinking Judging

so in the Afro-American achievers. The pattern, in fact, follows the predictions exactly. Individuals who do well are likely to be more field-independent or highly perceptually differentiated, are sharpening their perceptual attention style, tend to categorize using rather broad-width groups, thereby coming up with very few categories, and the use of both successive and simultaneous processing as Garrick (1978) suggests.

The most common difference noted among all three groups who did less as well academically when compared to the Euro-American high achievers in school was the commonality of all preferred sensory-perceivers. This means that both high and low achieving Afro-American and low achieving Euro-Americans indicated a preference for depending on one's observations rather than one's hunches or guesses. In other words, it is the difference between being extremely reality based and being creative, gifted, innovative, and imaginative.

Myers (1980) and Lawrence (1979) describe individuals who prefer the sensing orientation as found on the Myers-Briggs Type Indicator as being intensely aware of the enviornment, more observant than imaginative, more pleasure loving and contented, a consumer of material objects. This individual prefers memorizing rather than hypothesizing and problem solving; are keenly aware of the changing moods of the physical surroundings, and then tend to accommodate these changes; prefers orderly progression of sequential details and pertinent facts (sucessive processing), dislike new problems, like established routines, enjoy skills already learned, becomes impatient and frustrated with complicated situations, and generally dislikes, does not get, or does not trust inspirations.

If we examine the description of field-dependent individuals as described by Witkin and his associates, very similar patterns of cognition are described. One might suspect, for example that the dislike for complicated situations of the more sensing student on the Myers-Briggs indicates an inability or unwillingness to ignore the distracting information in the Embedded Figures Task, therefore the student would also come out as field-dependent.

Inasmuch as this pattern is also found in the low Euro-American achievers, most of whom are also economically disadvantaged, it begins to appear that the previously proposed culturally-induced cognitive style preference for Afro-Americans may in fact be related only to being a part of a group toward which there is economic prejudice. Of course, one might contend that inasmuch as all Afro-Americans regardless of social status, experience some sort of economic prejudice to which they must adapt, they develop cognitive patterns which seem to accommodate this type of stress.

Such a relationship is similar to the one suggested by Berry (1976) in his study of cognitive style and economic stability of a particular group. To reiterate, Berry suggested that cognitive style patterns were the result of economic role attunement. If we follow this to its logical conclusion, the assumption would have to emerge that the cognitive patterns which emerge for Afro-Americans and other groups who do not have equal access to the economic system of the country are the result of differences in perceptual attention as fostered by such a role. In other words, we are again faced with the possibility that the performance and functioning in the school setting has a direct relationship to one's perception of economic access capabilities. This assumption is certainly supported by the study done by Yando, Seitz, and Zigler (1979). As in this study, the results presented by these authors suggest that when academic performance on standardized tests are controlled for all groups, the differences associated with social class membership are more extensive than the differences associated with ethnic group membership.

If this is the case, it would appear that the prescribed information processing and adaptational style pattern as evidenced by the Euro-American achievers should be found in the more highly stable upper economic families within the Afro-American population. Future research efforts need to confirm this.

Chapter VII

Summary and Conclusions

To be considered a successful member of American society, individuals must acquire sufficient economic resources to support their desired life-style, enough power to effect decisions about their lives, and demonstrate competence in certain prescribed tasks. Based on the quantity of these elements, individuals are assigned a status within the social hierarchy as a way of indicating their level of competence in meeting these expectations (Williams, 1969). The opposite view is also assumed, i.e., that the lower the status, the greater the incompetence. When statistics indicate a large percentage of some socially defined group has failed to assimilate and respond to these societal requirements, a stigma is attached to membership in that category of people.

Afro-Americans, more than any other group in America, seem to be disproportionately assigned to the status of "incompetents." Among the reasons promoted for this state of affairs is the concept that, as a group, Afro-Americans lack the ability to acquire the skills and knowledge necessary to be successful. Those who do not accept this view blame the situation on the severe restrictions imposed on Afro Americans which prohibit equal access to the learning and knowledge necessary to enhance performance. To the proponents of the "social barrier" thesis, the public school system is the major cause of the problem.

The idea that the school is the mechanism for transmitting necessary social and economic knowledge and skills to all of the citizens has been promoted by educators, philosophers, and leaders of this society since the establishment of the public system (Greer, 1972). It is a belief that was also accepted by the Africans who became unwilling immigrants to this country. For them, acquiring the ability to read and write was equated with the acquisition of freedom. W.E.B. DuBois (Moon, 1972) pointed out, for example, that: "Education is the training of men of life. If the Negro is to survive as a man of thought and power, a coworker with the leading races of civilization, a free and independent citizen of a modern democracy," then the foundation must be laid through the maximum participation in the schooling process. This same thought was echoed by slaves prior to DuBois' writings and it is an idea promoted and heralded throughout the Afro-American community even today (West, 1972).

The affirmation of the need for schooling has again been found in the recent work by Wilson (1979), who suggests that the future of Afro-American economic security and advancement seems to rest in the greater acquisition of skills and knowledge to meet a changing world. The place from which this learning may be acquired is the educational system. Wilson believes that the disappearance of jobs and the decreasing need for unskilled laborers is increasing the gap between those who "have" acquired a substantial portion of social goods and those who "have not." He, thus, warns that America might soon become saddled with a large underclass, many of whom will be Afro-Americans. This proposition has served to increase the alarm and the demands for more effective schooling process for members of the Afro-American population.

At first glance, of course, the enormity of the situation seems exaggerated. More Afro-Americans than ever before are enrolled in colleges and universities. In fact, more Afro-Americans than ever before are attending and completing high school. In the work place, more Afro-Americans are found in the professions, in corporate structures, and in higher education facilities. If, however, one examines the statistics and situation more closely, one notes that these increases have not been of sufficient magnitude to balance the unequal status of Afro-Americans in the social, economic, and political arenas as has occurred with other members of American society. Again, the fact that many Afro-Americans are unable to obtain adequate scores on tests or sufficiently high teacher evaluations to indicate a high level of competence in required information is given as the reason for this unequal representation (Wright, 1970; Ogbu, 1978).

There are, of course, many who would argue very convincingly that the assessment tools used to measure this learning are invalid, unreliable, and more particularly, biased against Afro-Americans and other minority groups (Williams & Mitchell, 1980). On the other hand, others argue that, inasmuch as these tools seem to be correlated with societal demands and Afro-Americans possess the ability to do well on them, perhaps the real issue is that Afro-Americans have not been exposed to or required to learn the skills and understandings being assessed by these measures (Ogbu, 1978).

Katz (1971), Berg (1971), and Spring (1972), as well as others, suggest that the inability of Afro-Americans to demonstrate the acquisition of sufficient skills and knowledge is directly related to the type of schooling being sponsored for them. According to this thesis, the schooling process is directly tied to the caste role which has been assigned Afro-Americans as a group in this society. Examination of the history of education for blacks seems to support this.

Almost from the time it was recognized that schooling would be an important mechanism for the development of the country, attention was focused on the propriety of giving and the amount of education needed by Americans of African descent. For many, the question was addressed through the issue of whether or not African-Americans were capable of being taught and capable of taking advantage of schooling. These advocates, coming largely from the pro-slavery quarters, indicated that Africans were inherently stupid and would not be able to tolerate the schooling process.

From the other perspective, the anti-slavery advocates suggested that the inability of the Africans to perform was due, not to differences in capabilities, but to the lack of learning and an ineffective schooling process. The nature or environmental argument was thus enjoined and the sides taken seemed to depend upon whether or not the proponents were economically dependent on the African-Americans (Jordan, 1968). For those religious leaders such as the Quakers, whose means of support was not associated with slavery, education of the African-Americans was perceived as important to break the chains of slavery. For the southern farmer, however, schooling was perceived as a tool of rebellion and loss of control of a very important labor force. Unfortunately, neither side of the argument viewed the educational process as a way of developing the African-American into a productive, mobile member of this growing society (Jordan, 1968).

Of course, some African-Americans received education prior to 1861 regardless of the argument. However, this was a different type of schooling than received by whites because it was oriented toward the preparation of people for agricultural, domestic, or personal service, and perhaps skilled crafts. Regardless of the program, only limited cognitive development was promoted.

For a short time after the Civil War, there appeared to be a move to educate Afro-Americans for equal status and equal opportunity within the scoiety. The schools set up by the Freedman's Bureau were not only funded on an equal basis but were designed to give Afro-American children the same type of education given to whites. The curriculum was primarily classical and aimed at mental discipline and thinking.

With the change in the control of the legislature and development in agriculture and industrial systems, the caste system based upon color reemerged and the goals of the educational systems shifted accordingly. Again, the missionaries and religious leaders intervened, but again their approach to the schooling process was one which did not train Afro-Americans to perform tasks which were in direct competition with Euro-Americans. If there were professionals to be trained, it was primarily for the purpose of serving within the confined Afro-American community. As Afro-Americans were displaced from their skilled jobs, they found again only agriculture, domestic, or personal service occupations open to them and an educational program which was appropriate only for these roles and that of social conformity (Ogbu, 1978).

The schooling process in the agricultural South between 1900 and 1930 was seen as tailored for a black person within the tenant system. Bond (1966) suggested that the individuals obtained the type of education which did not provide more information than was necessary for the dependent economic situation, nor too little which hampered adjustment to the environment. The mass migration to the urban centers found schools which were superior to those in the rural areas, but even then there was a difference in the curriculum. For Afro-Americans the emphasis was on manual training rather than training the mind for reasoning and problem solving.

As the nation's industrial development demanded more and more workers with industrial skills, and as industrial education became a nationwide movement, the participation of blacks in the social economic and educational arenas was restricted. The curricula of the black schools, now the dominant institution in which Afro-American children entered and left the schooling process, began to emphasize classical rather than industrial training. This situation, of course, was the exact reverse of what was occurring in the mainstream Euro-American culture. Now Euro-Americans were preparing for positions within the industrial community and economically rewarding jobs (Pierce et al., 1955; Myrdal, 1944). Again, the system of education was intimately tied with the job market of the society, whether in the North or in the South.

The changes of the 50's and 60's, however, which precipitated the change of policy to desegregation and the development of compensatory education signaled a commitment to change the educational focus from one of role definement to one of equal opportunity and social mobility. Title I programs, nursery schools, emphasis on development of basic skills, entrance of Afro-Americans into the mainstream through schools and occupations, and the expenditure of millions of dollars for busing, school-pairing, and improved teaching/learning situations were the foci of that period. Why was this change ineffective?

The examination of this question has been done from many perspectives. Coleman (1965) examined the question by looking at the funding, the racial mixture of school facilities, teacher attitudes, and some personality dimensions of Afro-American students. Most interpreters of the report concentrate on the effect of integrated schools and equal facilities and suggest that the effectiveness of the schooling process is intimately related to schools with a black and white population, rather than one with a dominant racial population of Afro-Americans. Coleman's most striking finding, however, seemed to suggest that the effectiveness of schooling depends upon the attitude of the teacher toward blacks within the school situation as well as the personality dimension of the Afro-American students who must perceive that he/she has some power over his environment and situation.

Other examiners of the question suggested that the effectiveness of the schooling process was dimensions due to the cultural deficit of the students and their families (Passow et al., 1967; Reissman, 1962). Generally, the theme promoted by this group of theorists suggested a deficit environment and in particular inadequacy of parents and inadequate socialization patterns based upon an inadequate or non-existent black culture. Others, of course, merely concluded that schools were not interested in teaching Afro-American children (Wright, 1970).

The charges and counter charges which these analyses stimulate has, of course, focused a great deal of attention on the need for reform of the school as an institution. John Ogbu (1978), however, points out that the focus on the school is but one aspect of the problem. He notes that:

> Blacks have not been and are not as successful as whites in learning the skills taught by these schools. This is a uniquely black problem which is not explained by the school failure (Ogbu, 1978, p. 50).

This suggests that perhaps the answer rests within the Afro-American community itself.

To identify differences related to Afro-Americans is, of course, a controversial approach. Regardless of the disclaimers involved or the methods used, the values of good/bad and inferior/superior are so ingrained in our society, that proposing unique Afro-American characteristics takes on political and social overtones. However, when skin color is not a consideration, social and behavioral scientists are seemingly prepared to concede that one should begin to examine individual performance based upon possible dissimilarities and uniqueness of some sort. One must thus assume that this same approach is a valid one for Afro-Americans if some acceptable solution to enhancing learning performance is to be found. Assuming Ogbu is correct, and in spite of the perils of identifying an Afro-American difference, this series of studies was done to explore the possibility of culturally-induced cognition which might affect the knowledge acquisition process. The results revealed the following:

1. There is a consistent pattern on the Embedded Figures Test which seems to suggest that Afro-Americans tend to be more field-dependent than Euro-Americans. This test seems to represent difference in perception which encompasses the perceptual, cognitive, and affective aspects of the individual which is generally associated with lower performance on school tasks. Exactly why this consistent difference occurs on this task at all achievement levels needs to be investigated. Perhaps this finding represents cognitive style attunement to accommodate the requirement of social conformity as Berry (1976) suggests.

2. On the other hand, while the difference was not overwhelming, Afro-Americans were found to categorize their world using more finely discriminated classes than Euro-Americans at all achievement levels. Why this difference exists and why this type of perceptual discrimination is antithetical to achievement performance is another important question to be answered. Again it is possible some culturally specific orientation is at work.

3. For the most part, however, if students are matched carefully for lifestyle, social situation, age, grade, and developmental level, there appears to be little, if any, difference in stylistic preferences and performance on cognitive tasks. This suggests that investigators in the assessment arena should be extremely careful in their selection of comparison groups, particularly when examining racial differences.

4. Perhaps the most important trend in this research, though, is the finding

that variation in cognitive patterns seems to be associated with performance in school as well as the social status of various students. From all appearances, Cohen's (1969) speculation is correct and our school setting does seem to be designed for and very attuned to certain types of behaviors. If it is found that these behaviors are highly correlated with a certain economic lifestyle, regardless of race, it would appear that the historical relationship between the work place and school is still a pervasive and overpowering factor which educators must begin to transend.

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Chapter I

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